

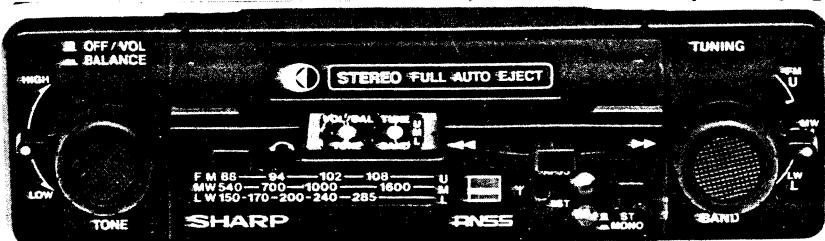


Service Manual

RG-5850H
RG-5850E



Auto Program Search System



Solid State In-dash Type Cassette Car Stereo Player with LW/MW/FM/FM Stereo Radio and APSS MODEL RG-5850H/RG-5850E

"In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used."

SPECIFICATIONS

GENERAL

Type Solid State In-dash Type 4-Track 2-channel Full Auto Stop/Auto Eject Cassette Car Stereo Player with built-in LW/MW/FM/FM STEREO 3-band Radio and APSS circuit

Power source 12 V (for negative earthing car only)

Output impedance 4 ohms/channel

Semiconductors 21-transistor (1-FET), 19 diode (2-LED) and 6-IC (integrated circuit)

Output power 8 + 8 W (maximum power)
5 W + 5 W (at 10% distortion)

S/N 54 dB

Dimensions 178 (W) x 130 (D) x 44 (H) mm

Weight 1.4 kg

TAPE PLAYER SECTION

Playback system 4-track, 2-channel Stereo

Using tape Philips standard compact cassette tape

Tape speed 4.75 cm/sec.

Wow and flutter 0.3% (DIN 45511)

Frequency response 50Hz ~ 10kHz/-6dB

Fast forward/Rewind

time 120 seconds (@ C-60 cassette tape)

Motor D.C. motor with mechanical governor

RADIO SECTION

Frequency range LW 150 ~ 285kHz

MW 520 ~ 1,620kHz

FM 87.6 ~ 108MHz

IF LW/MW 452kHz

FM 10.7MHz

Sensitivity LW 400μV/20dB

MW 40μV/20dB

FM 2.5μV

SHARP CORPORATION OSAKA, JAPAN

PARTS LAYOUT

① Tone Control	⑦ FM Stereo Indicator
② Power Switch/Volume Control/Balance Control	⑧ APSS Indicator
③ Cassette Ejection/Fast-Forward & Rewind APSS Release Knob	⑨ FM Stereo/Mono Selector
④ Cassette Door	⑩ Tuning Control
⑤ Fast-Forward/Rewind/APSS Lever	⑪ Band Selector
⑥ Antenna Trimmer (TC102)	

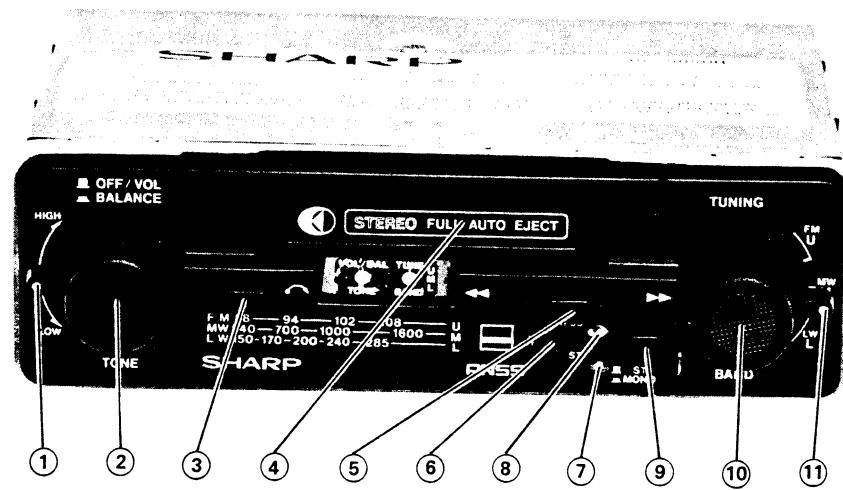


Figure 1 FRONT PARTS LAYOUT

⑫ Ground Terminal
⑬ Antenna Socket
⑭ DIN Socket, 6-pole (RG-5850H only)
⑮ DIN Socket, 7-pole (RG-5850H only)
⑯ DC Input Socket
⑰ Speaker Socket

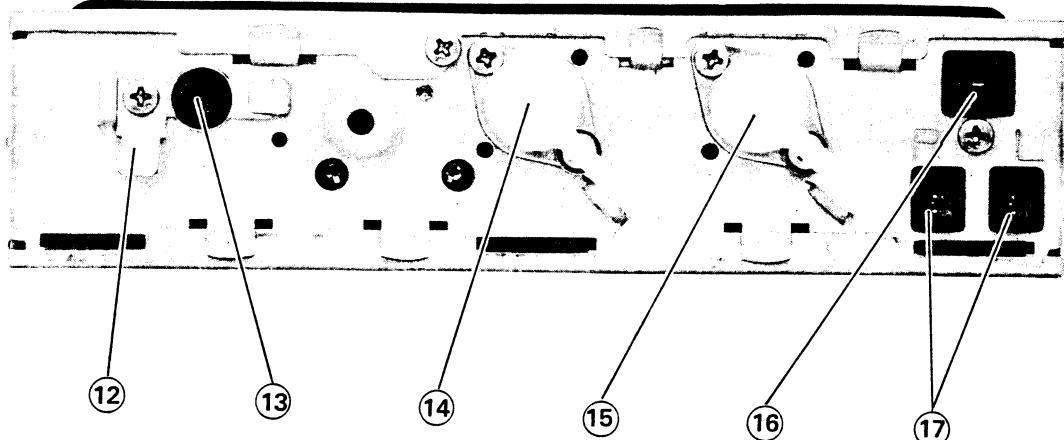
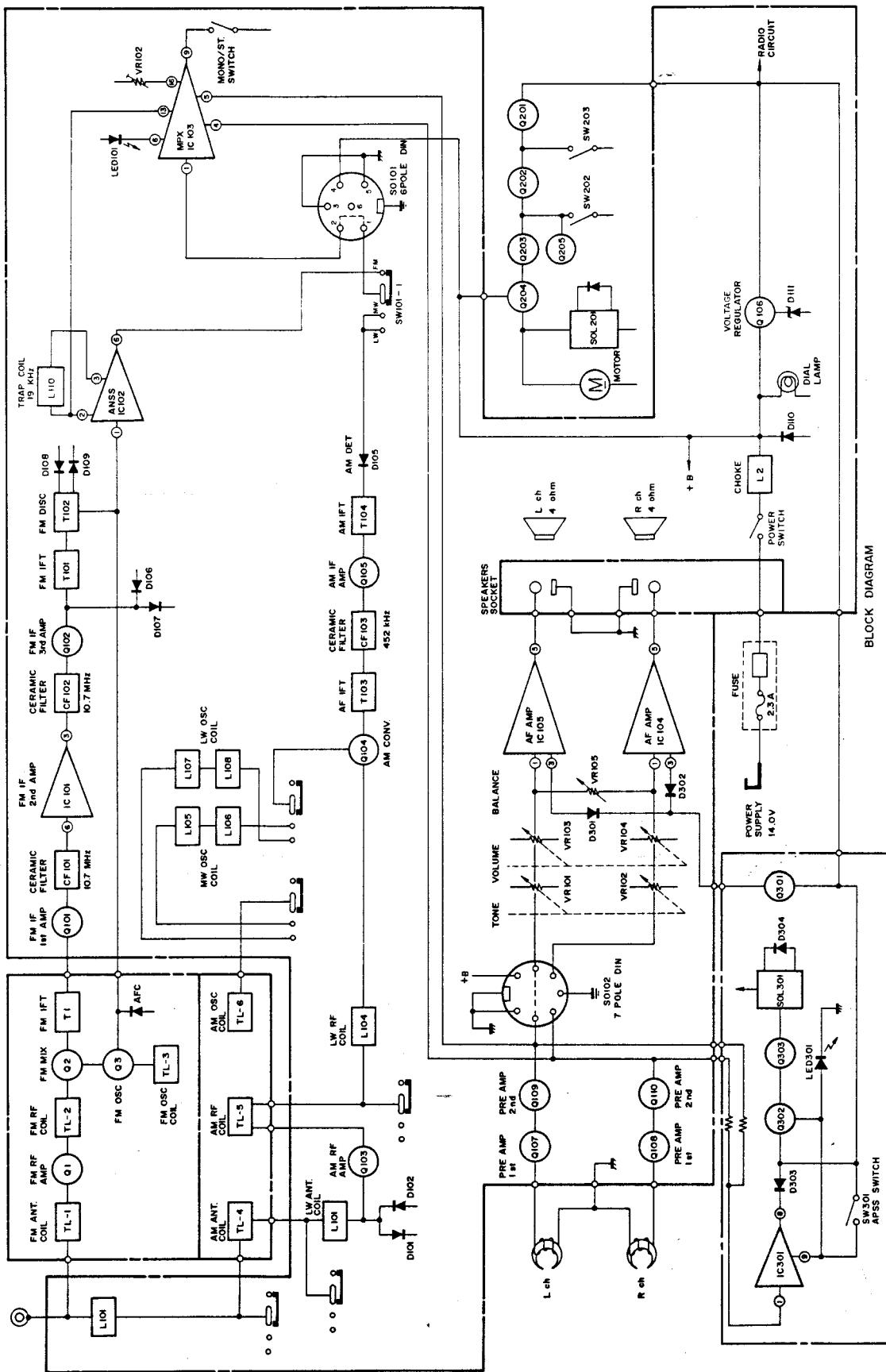


Figure 2 REAR PARTS LAYOUT

BLOCK DIAGRAM



FM ALIGNMENT CHART

Set the band selector switch at "FM" position.

STEP	TEST STAGE	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
		CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	IF (NOTE B)	Connect signal generator through a .022MFD capacitor to antenna socket (SO101). Connect generator ground lead to the receiver chassis.	Exactly 10.7MHz (400Hz, 30%, FM modulated)	Low end of dial. (maximum inductance)	Connect VTVM between test point TP102 and chassis ground.	Detune T102. Tune T1, and T101.
2	Ratio Detector	Same as step 1.	Exactly 10.7MHz (unmodulated)	Same as step 1.	See NOTE A.	See NOTE A.
3	Repeat steps 1 until no further improvement can be made.					
4	Band Coverage	Connect signal generator through a dummy including output impedance of signal generator to the car antenna socket (SO101). Ground lead of generator connected to the receiver chassis. (Refer to Figure 5)	Exactly 87.2MHz (400Hz, 30%, FM modulated)	Same as step 1.	Adjust for maximum output at speaker voice coil.	Oscillator trimmer TC2
5	Tracking	Same as step 4.	Exactly 88MHz (400Hz, 30%, FM modulated)	88MHz	Same as step 4.	RF trimmer TC1.
6	Repeat steps 4 and 5 until no further improvement can be made.					

NOTE B

Five kinds of ceramic filter (CF101, CF-202) are available for this set. The difference of central frequency from each other can be known by the color indication. The table below shows such a difference of IF and S curve, depending upon the color indications of the ceramic filter (CF101, CF102).

Central Frequency	D	Black	10.64MHz ± 30kHz
	B	Blue	10.67MHz ± 30kHz
	A	Red	10.70MHz ± 30kHz
	C	Orange	10.73MHz ± 30kHz
	E	White	10.76MHz ± 30kHz

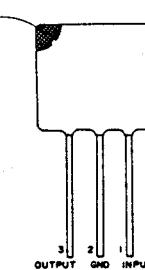


Figure 6

For their employment, it is required to use two ceramic filters of same type.

FM STEREO ALIGNMENT

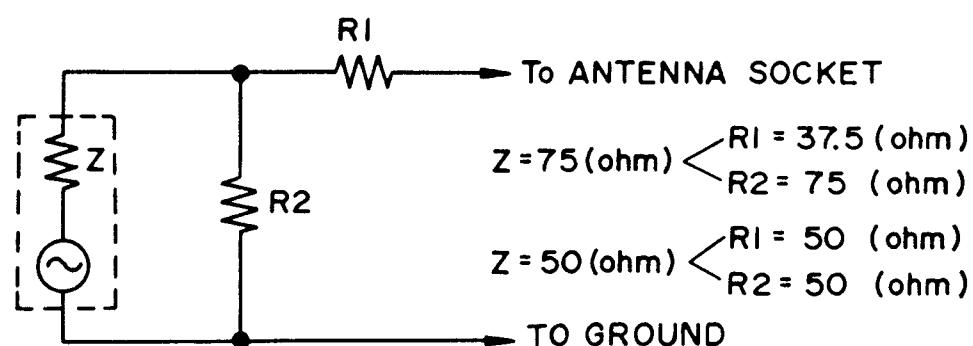
Set the band selector switch at "FM" position and Stereo/mono Selector switch at "STEREO" position.

STEP	SIGNAL GENERATOR		RECEIVER		METER CONNECTION	ADJUSTMENT
	CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS		
1			98MHz	Adjust so that the frequency becomes 19.0kHz. (In case an oscilloscope is connected to the test point TP101, adjust the signals to be 19kHz by using Lissajou's wave-form).	Connect the frequency counter (or oscilloscope) through a 100K ohm resistor to TP101 (12 pin of IC103).	VR102

If without the frequency counter, proceed with the alignment as follows. While receiving a FM stereo signal, turn the VR102 until the P.L.L. will be locked (when it is locked, the stereo indicator will be lit). Then, reversely turn the VR102 halfway and fix it.

NOTE A

- 1) Connect VTVM (0.1 volt range D.C. Scale between test point TP102 and chassis ground.).
- 2) Adjust T102 for 0 volt on VTVM.
- 3) Change signal generator frequency 10.7MHz + 100kHz and -100kHz approximately.
- 4) Adjust T101 for balanced peaks. Peak separation should be approximately 200kHz.



Z=OUTPUT IMPEDANCE OF SIGNAL GENERATOR

Figure 5 FM DUMMY

ANSS ADJUSTMENT

(Pins 1, 6 and 15 described below are of IC102.)

1. Set the band selector switch at "FM" position.
2. Apply a 19 kHz signal of 30 mV to pin 1.
3. Connect a VTVM and/or an oscilloscope to pin 6.
4. Adjust L110 for minimum output at pin 6.
5. Then, apply a 1 kHz signal of 100 mV to pin 1.
6. Make sure that there is no output at pin 6, applying a 100 kHz signal of 50 mV further to pin 15.
7. Next, make sure that a 1 kHz signal of 100 mV appears at pin 6, connecting pin 15 to earthe.

THE INSTRUCTION OF FREQUENCY ADJUSTMENT

In order to comply with Pfg. Nr. 358/1970, please fix the low end of dial frequency (87.5MHz) and the high end of dial frequency (107.9MHz) on FM band, by adjusting oscillation trimmer (TC2) and oscillation coil (L4), respectively, as illustrated in Figure 7.

HEAD AZIMUTH ADJUSTMENT (Refer to Figure 7)

Standard Test Tape to be applied: Philips HU-71512 or the equivalent (TEAC MTT-113, VICTOR VTT-601).

- (1) Set the Player Unit on.
- (2) Turn the azimuth adjusting screw until the output of the test tape (6.3kHz) is boosted up to the maximum.

Caution: After completion of the adjustment, be sure to lock the adjusting screw in place, using glyptal or glue.

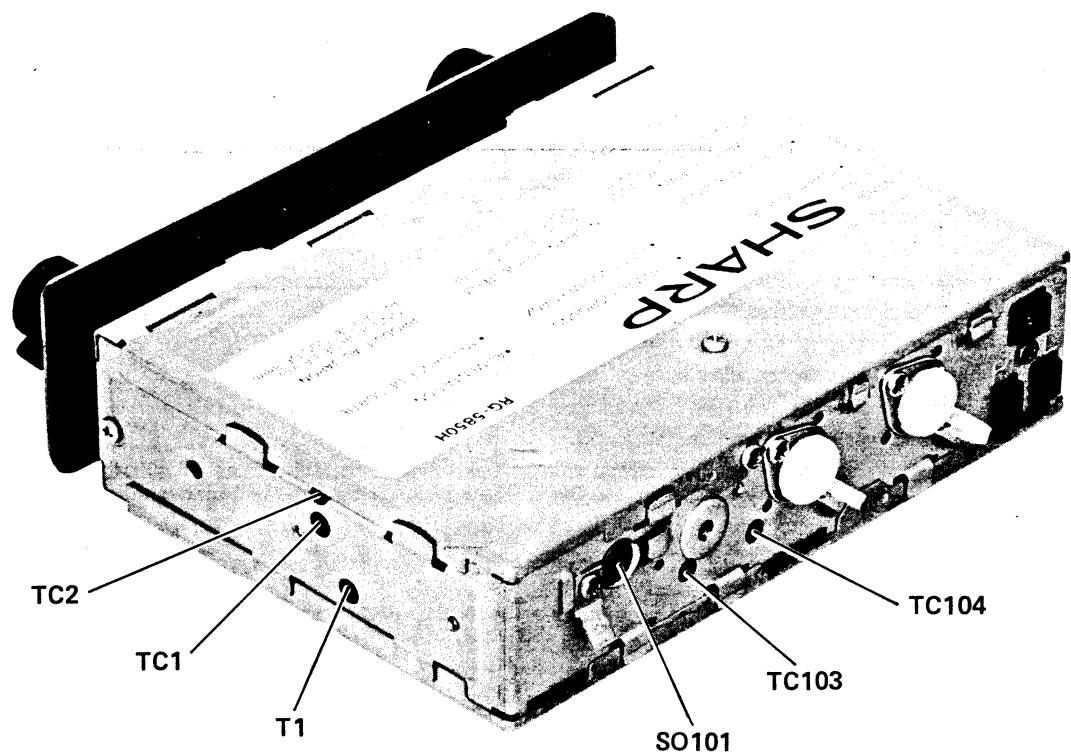
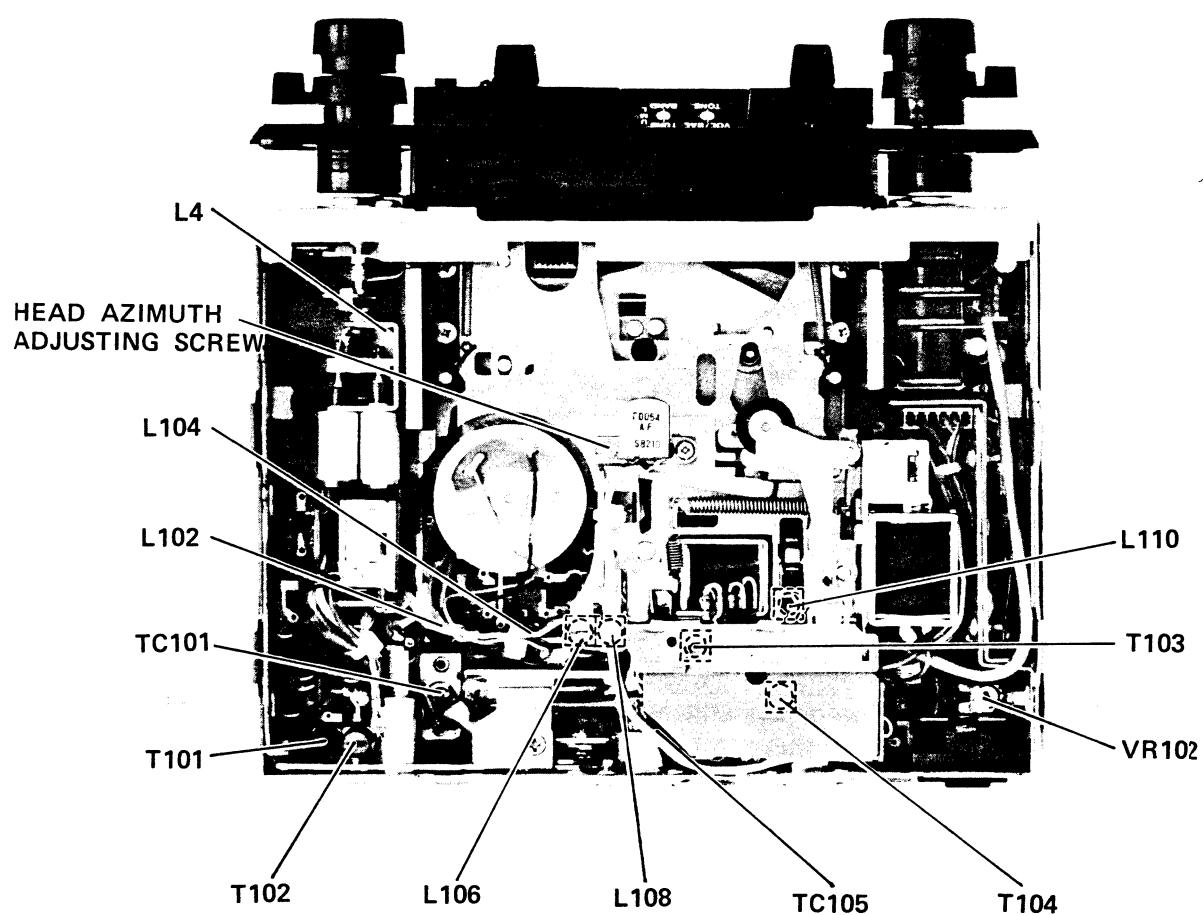


Figure 7 ALIGNMENT POINTS

ANSS (Automatic Noise Suppressor System)

SUMMARY

Electrical interferences generated by combustion engines used in motor-cars are necessary to be suppressed to make listening to FM broadcastings possible. An effective way to suppress interferences produced by its own car and those of others received via the antenna is to apply a kind of noise gating for the output signal of the FM

demodulator. Since the mentioned interferences have a frequency spectrum upto several hundreds of kHz being easily reproduced by the FM demodulator there is sufficient signal available beyond 53kHz to drive this gating circuit. Based upon these principles the ANSS has been developed.

INTRODUCTION

In the FM car radio, pulse noise received via the antenna becomes unpleasant noise that interferes with the happy FM listening, passing the circuits between the antenna and the speaker. The ANSS is a device that can automatically remove such pulse noises from the incoming signals, so only the desired signals will be obtained. Being detected at the FM detector, both the desired signal and pulse noise, caught by the antenna, are superposed each other as shown in Figure 8. Then they are applied to the ANSS circuit where only the desired signal is developed since the noisy one is removed.

The bandwidth of the ANSS, necessary for a good stereo signal, has to be about:

$$38 \text{ kHz} + 15 \text{ kHz} = 53 \text{ kHz.}$$

(stereo subcarrier) (Upper side band channel)

For stereo signal reception, the arriving signals are applied to the gate circuit of the ANSS, in order to prevent the pilot signal from undergoing amplitude modulation (which causes noisy sound through the succeeding circuits), this pilot signal is first supplied to the 19 kHz trap filter, located prior to the gate circuit, where it is removed and only the audio signal can appear at the ANSS circuit then to be applied to the stereo multiplex circuit.

In addition, before being supplied to the 19kHz trap filter, a part of the stereo pilot signal is also applied to the VCO circuit, a part of the stereo multiplex circuit. Since the VCO circuit is of PLL system, if the pilot signal enter the VCO circuit, the PLL becomes completely locked so as to eliminate any possibility of noise occurrence in the stereo multiplex circuit due to the noise entered together with the pilot signal. In this way pulse noise caught by the antenna is eliminated.

Another feature of this system is that in FM stereo reception, the signal to noise ratio is improved, because

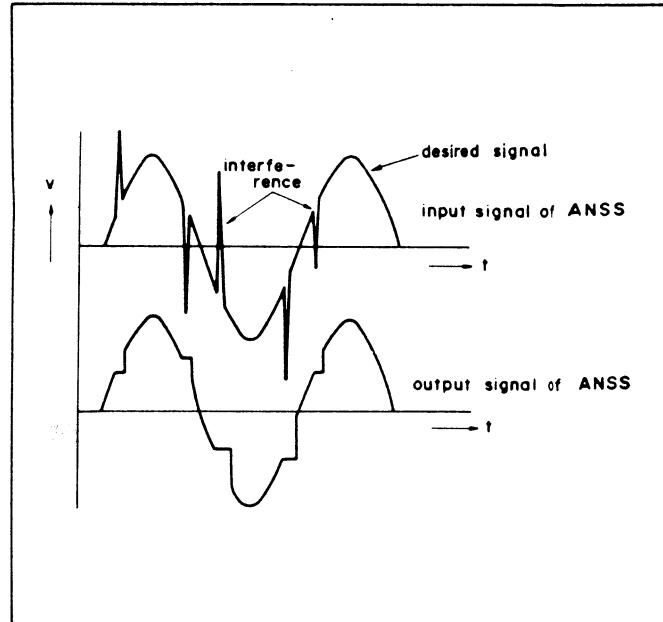


Figure 8

the stereo pilot signal has no possibility of mixing in the audio signal produced, being removed by the 19kHz trap filter.

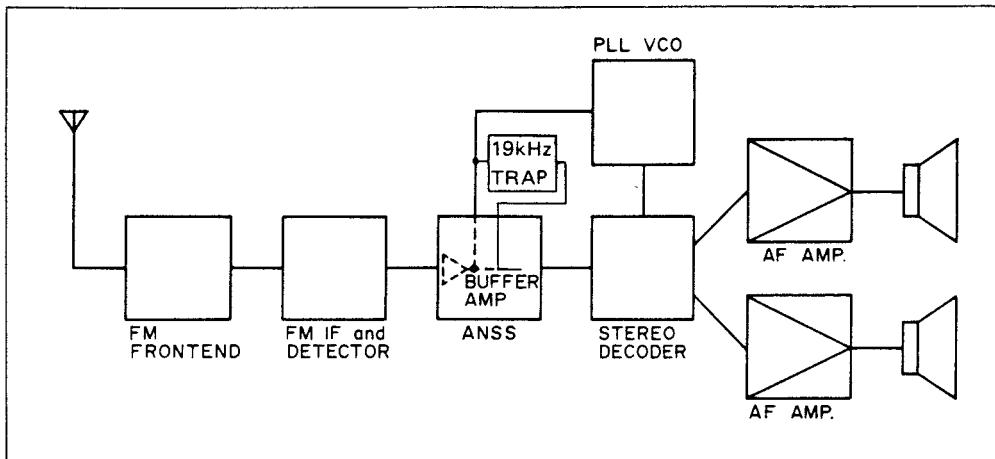


Figure 9

BLOCK DIAGRAM

The block diagram is shown in Fig. 10.

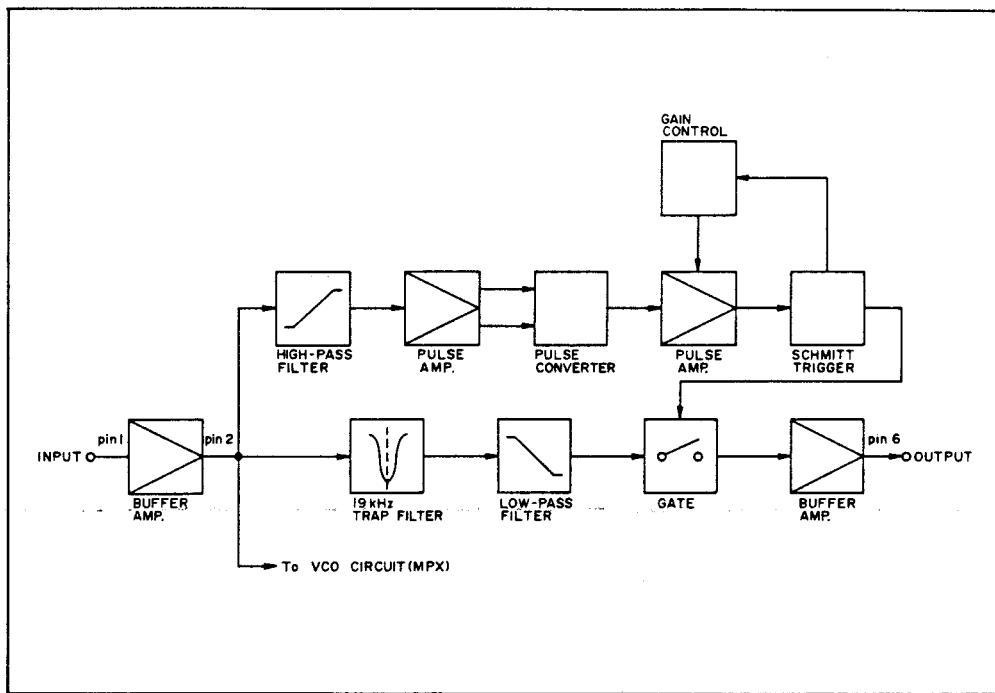


Figure 10

Explanation of the block diagram

Input signals at the pin 1, both the desired signal and pulse noise are appeared at the pin 2 via the buffer amplifier. Then, they are divided into the two, one to be applied to the high-pass filter side and another to the low-pass filter side.

In the high-pass filter, only pulse noise is picked out from the incoming signal, and this noise is amplified by the pulse amplifier. The noise thus amplified is transferred to the pulse converter where the negative pulse is converted to positive one to be supplied to the pulse amplifier where it is formed a strong signal enough to activate the Schmitt trigger.

Coming out of the Schmitt trigger, the signal is coupled to the gate circuit of the ANSS, which will be turned off. Also, the ANSS is equipped with the gain control circuit that will control the input signal of the Schmitt trigger, if a great amount of the continual pulse noises arrived, and prevent the gate circuit from turning off. Meanwhile, in the low-pass filter side, the arriving signal is first applied to the 19 kHz trap filter where the stereo pilot signal is removed, and the remaining signal is coupled to the low-pass filter. The signal coming out of the low-pass filter, which has frequencies lower than 53 kHz, is then applied to the gate circuit. In this gate circuit, pulse noise,

if being included in the input signal, will be got rid of and so only the desired signal will be developed. However, being turned off, the gate circuit has no output. To prevent this, the ANSS is equipped with such a circuit that maintains output at the level just before the gate circuit is turned off. For this reason, there will be no

secondary noise appearance caused by switching of the gate circuit. It is noted that a part of the stereo pilot signal is, without entering the 19 kHz trap filter, coupled to the VCO circuit (of the stereo multiplex circuit) to drive.

DESCRIPTION OF THE CIRCUIT

Input stage

The input stage consists of a simple emitter follower, see Fig. 11.

This stage has been added to the circuit in order to avoid an influence of the input impedance of the L.P. and H.P. filters on the output of the FM detector and reversed. To be sure that the circuit works correctly, the DC voltage at pin 1 needs to be $0.4 \times V_9 - V_{16}$ ($0.4 \times$ supply voltage).

The input impedance at 1 kHz: $|Z_i| \geq 70$ K ohms.

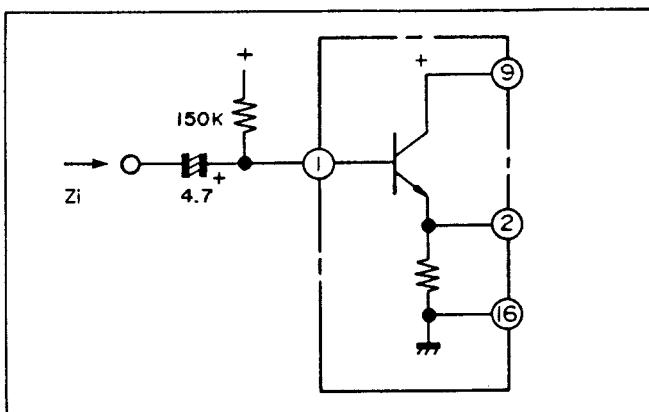


Figure 11

The low-pass filter (delay line)

To be sure of a good signal handling of the desired signal this filter has to meet next requirements.

- the delay time has to be at least 3 μ sec.
- the amplitude characteristic has to be as flat as possible in the pass-band.
- the phase behaviour has to be linear.
- the distortion of the desired information at the output must be as low as possible.

In order to meet these requirements use is made of a 4th order Butterworth filter realised by an active RC circuit. (see Fig. 12).

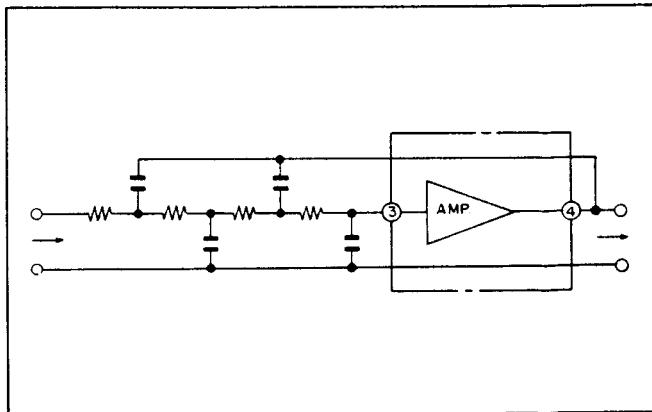


Figure 12

Gate circuit and output amplifier

The circuit is give in Fig. 13.

The point, indicated with P, is connected to the positive output of the Schmitt-trigger.

If there is a positive pulse at P then Q_c becomes conducting and takes away the driving current for Q_b . At the same time the base voltage of Q_e will be kept constant by the RC circuit connected to pin 5.

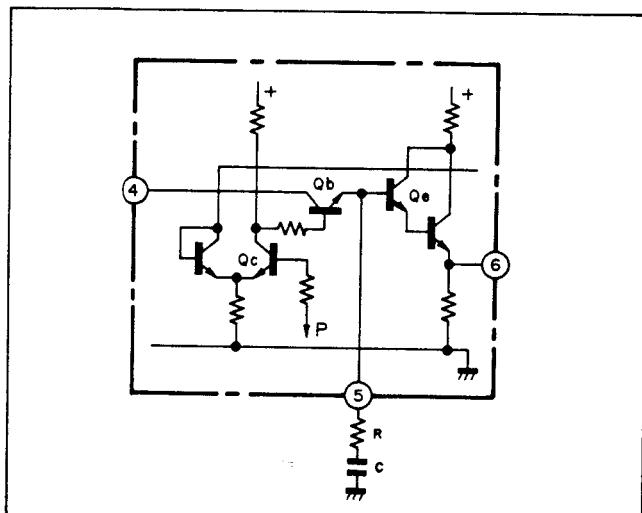


Figure 13

High pass filter

In order to detect the interferences out of the input signal a high pass filter is used.

In practice one wants to suppress as much interferences as possible in order to get a "clean" output signal.

The theoretical curve of the H.P. filter has been given in Fig. 15.

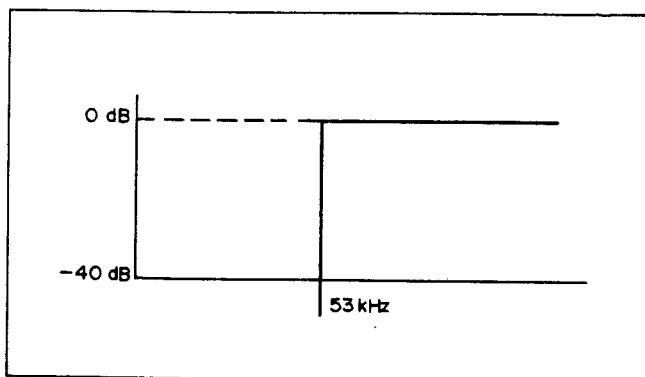


Figure 15

A practical approximation of this curve can be achieved by a 4th order Chebyshev filter at which for car radio applications -3dB can be chosen at 91kHz.

To get a steep slope an extra R and C are added circuit.

19 kHz filter

During suppression but without this filter the 19kHz signal will look like Fig. 14.

To be sure of no audible low-frequency component, the voltage during suppression needs to be zero. (See gap Fig. 14) However this happens only very sporadic so that filtering out of the undesired low frequency component is necessary, otherwise this low frequency component breaks through to the audio part via the MW-channel. Thus a 19kHz filter is added to the circuit.

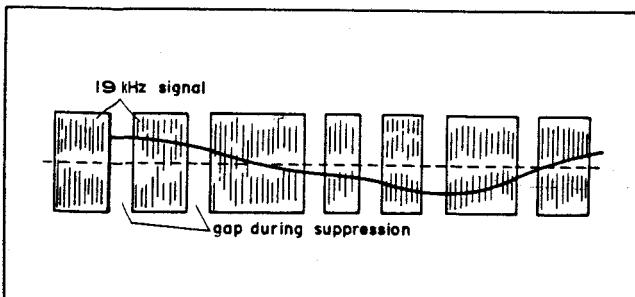


Figure 14

Gain control

The circuit is give in Fig. 16.

To be sure of an audible signal during a too high repetition rate of the interference pulses and/or a too intensive noise it is necessary to reduce the repetition rate of the suppression.

From the Schmitt-trigger the negative output pulses are fed to the integrating network connected to pin 12. If V_C'' which is V_9-12 becomes $\geq V_{BEQ8}$ then the gain of the pulse amplifier will be reduced.

In case of noise, at which normally the "interference spikes" are very close to each other, it is better to build up the voltage across C'' directly, because during one suppression time there are a lot of noise spikes.

This information for the gain control is lost if the negative output of Schmitt-trigger is used.

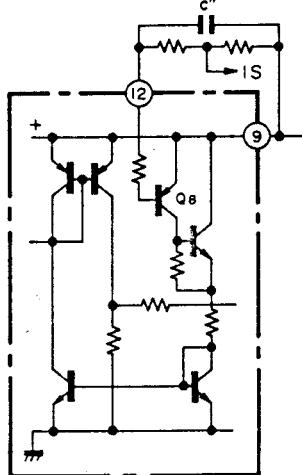


Figure 16

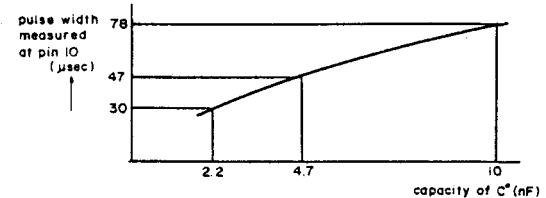


Figure 18

Schmitt-trigger

The circuit is shown in Fig. 17.

The positive output is used for driving the gate circuit while the negative output is fed to the gain control.

The pulse width of the pulses delivered by the Schmitt-trigger can be controlled by an RC network at pin 11 of Fig. 17.

The pulse width as function of the value of the C° connected at pin 11 while the R° is kept constant at 6.8K, is given in Fig. 18.

For measurements the pulse at the input of the ANSS (pin 1) has a pulse width of 10 μ sec., a rise time of 6 nsec. and a pulse height of 0.1V.

To ensure proper operation of the Schmitt trigger for various R^oC^o combinations it is advised to measure the pulse at pin 1 and pin 10.

The depicted signals should have a shape as shown in Fig. 19.

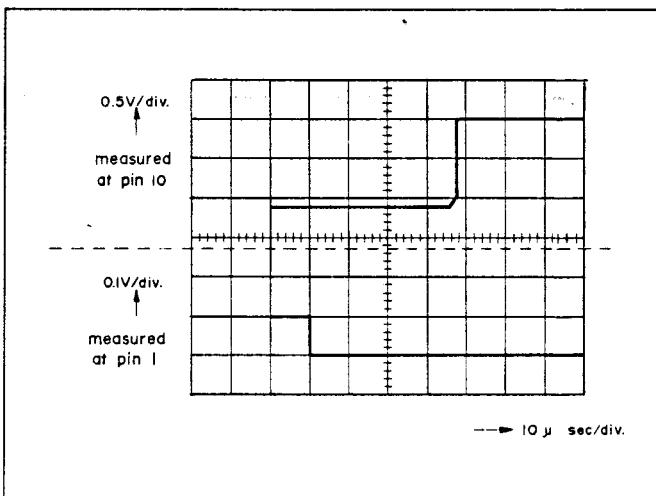


Figure 19

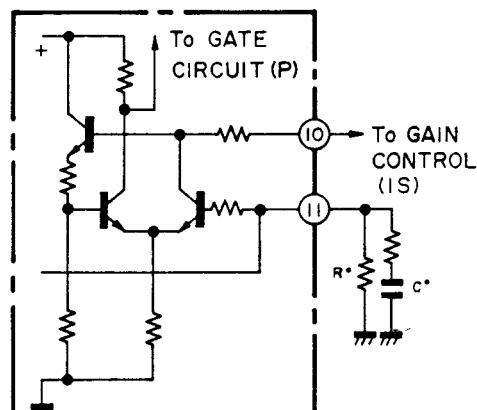


Figure 17

CIRCUIT DESCRIPTION

WHAT IS THE APSS (Auto Program Search System)

The APSS is a device which finds the beginning of programs recorded on a music tape available in the market, thereby providing automatic playing of them.

If the APSS lever is set to the position "FWD" (◀◀) or "REV" (▶▶) in playing the APSS indicator lights up, sound dies away and tape is taken up rapidly on the right-hand or left-hand reel. When a space between programs is reached the APSS lever returns to the original position automatically, which switches off the APSS indicator to put the unit in the play mode.

APSS circuit (Refer to Figures 20 and 21)

The APSS circuit is composed of integrated circuit (IC301) and plunger control circuit. The following description refers to the details of these two circuits.

1. The integrated circuit (IC301) comprises amplifier circuit, constant voltage circuit, detection circuit, rectifier circuit, comparison circuit and Schmidt circuit, and a voltage developed at its output terminal (pin no. 8) reaches high level when a signal is impressed on its input terminal (pin no. 1), while the voltage reaches low level when no signal is impressed.
2. The plunger control circuit comprises two transistors (Q302, Q303). The transistor (Q302) actuates the plunger only when output from the integrated circuit (IC301) is at low level, and the transistor (Q303) switches the plunger power supply with output from the transistor (Q302).

Behavior of APSS circuit (Refer to Figures 20 and 21)

If the unit is put in the APSS mode a signal amplified by the regenerative equalizer amplifiers Q108 thru Q110 enters the integrated circuit (IC301) at its input terminal (pin no. 1) to hold a voltage developed at its output terminal (pin no. 8) at high level (8 V), switching off the transistors (Q302, Q303). That is to say, the unit stays in the APSS mode while a signal is sent from tape because the plunger does not act meanwhile. If no signal is sent from tape a voltage developed at the output terminal (pin no. 8) of integrated circuit (IC301) reaches low level (4 V), which causes charge current to flow through the emitter and base of transistor (Q302) to the electrolytic capacitor (C305), switching on the transistor (Q302). This causes current flow to the base of transistor (Q303), which switches it on to permit current flow to the plunger, changing the mechanism area from the APSS mode to the play mode.

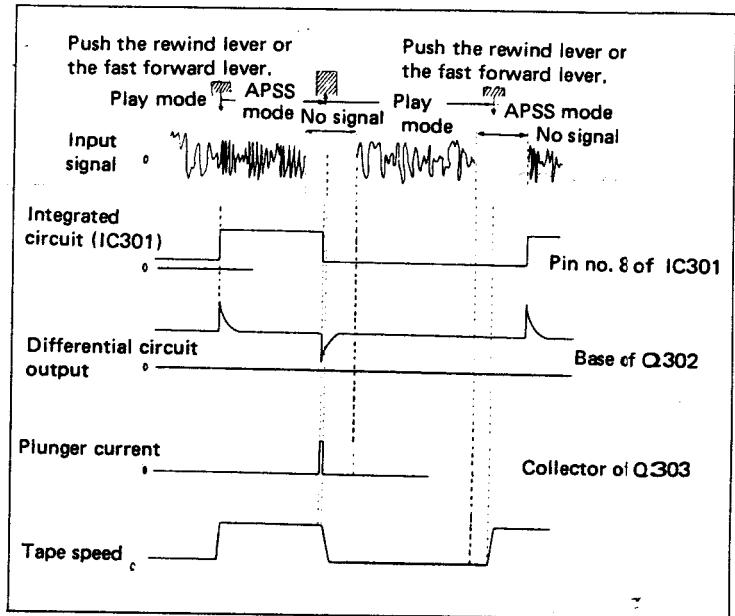


Figure 20

Block Diagram of APSS Integrated Circuit

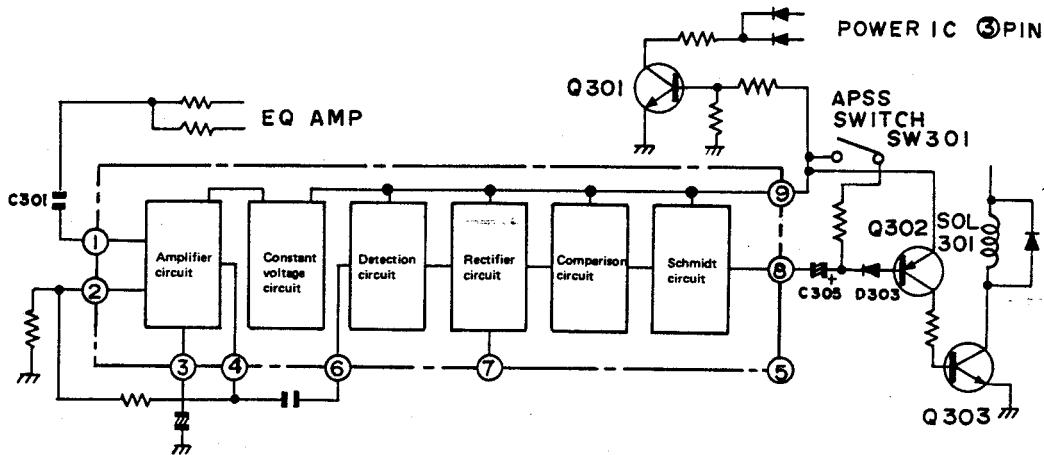


Figure 21

■ POSITIONAL ADJUSTMENT OF APSS SWITCH (SW301)

(Refer to Figure 22)

1. PLAY MODE

- (1) Set the unit in play mode.
- (2) Adjust the setting position of the APSS switch (SW301) so that the interval (A) of Figure 22 will be as specified.

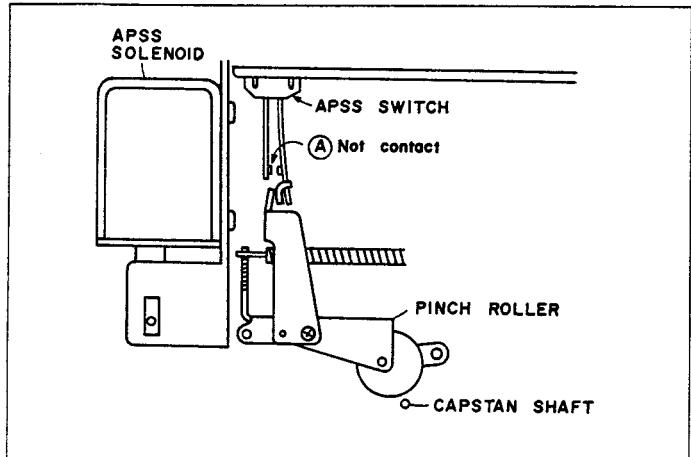


Figure 22

2. APSS MODE

- (1) Set the unit in Fast-forward APSS (or Rewind APSS) mode.
- (2) Adjust the setting position of the APSS switch (SW301) so that the interval (B) of Figure 23 will be as specified.

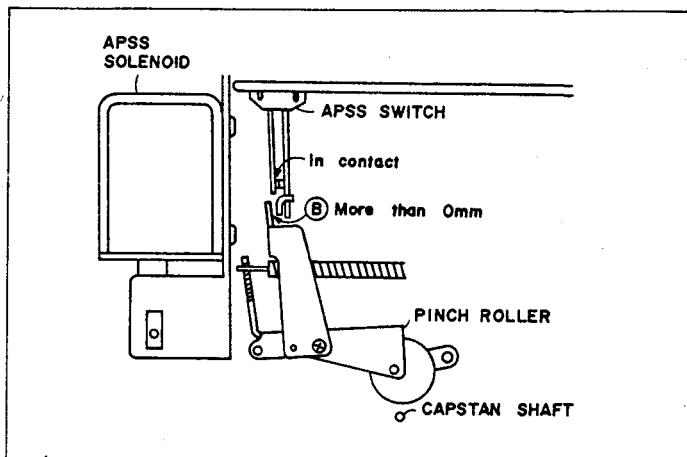


Figure 23

DIAL CORD STRINGING

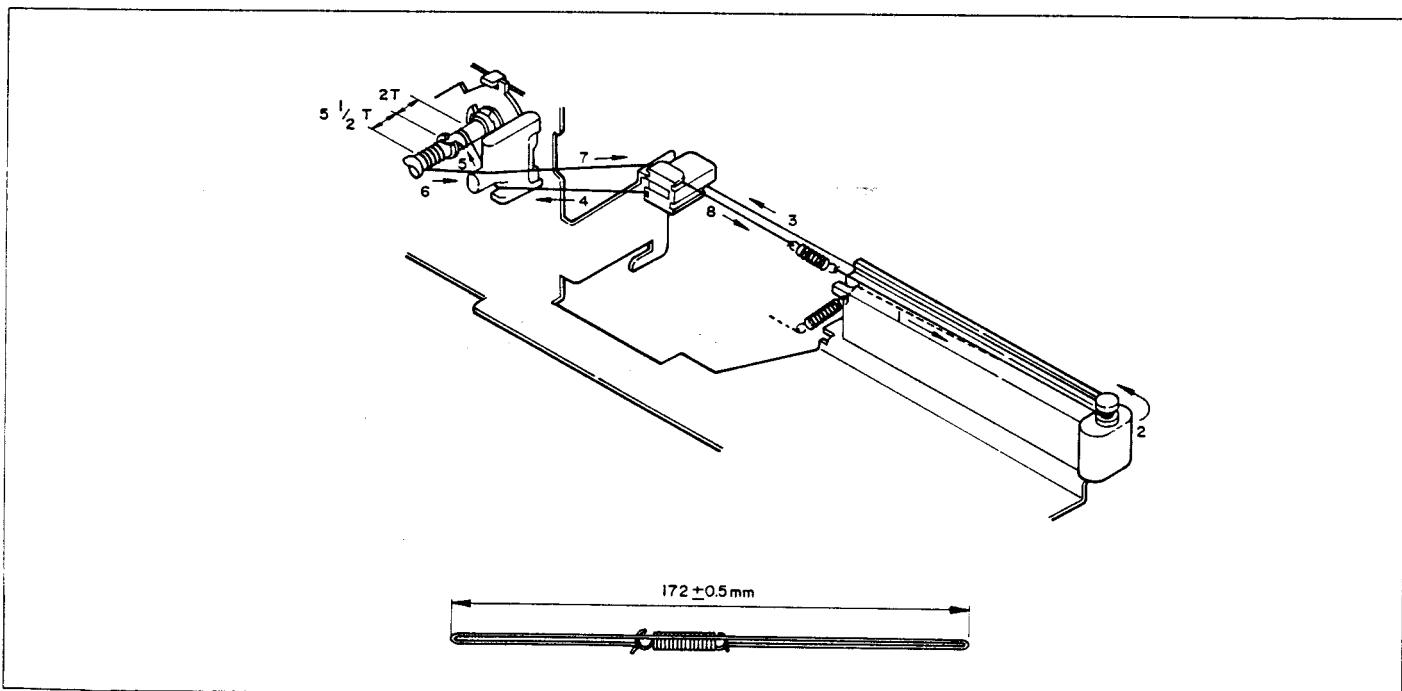


Figure 24

MECHANICAL ADJUSTMENT

FLYWHEEL THRUST CLEARANCE ADJUSTMENT (Refer to Figure 25)

Slowly tighten the screw for adjusting the flywheel thrust clearance until the thrust clearance becomes 0 (zero) and loosen the screw by 1/2 ~ 1 turn from this point. Since screw's pitch is 0.5mm, thrust clearance of 0.1 ~ 0.3mm is produced.

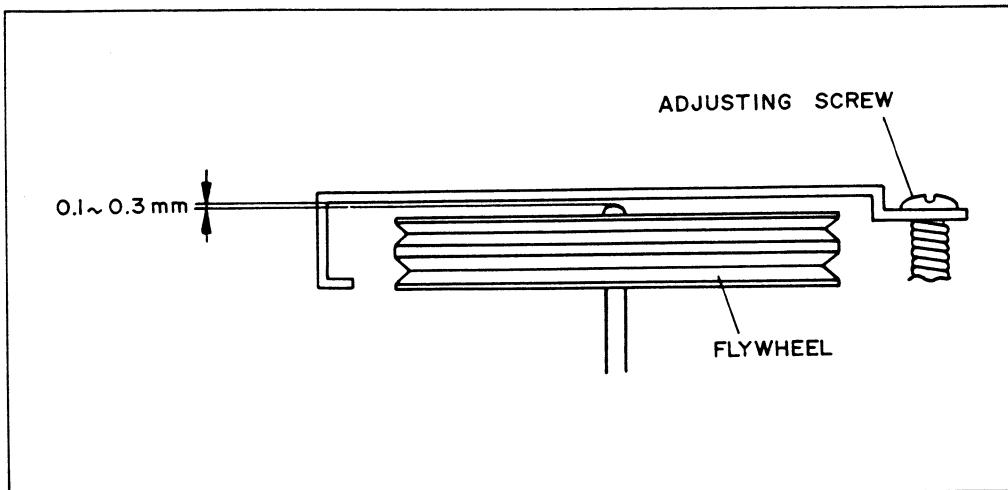


Figure 25

TIMING ADJUSTMENT OF RADIO/TAPE SELECTOR SWITCH (Refer to Figure 26)

At the moment the radio/tape selector switch turns to the tape position (and the motor starts to rotate), the gap between the pinch roller and the capstan shaft should be 0 ~ 0.2 mm. If the value is not satisfied, adjust the pushing arm by changing the setting position and/or bending.

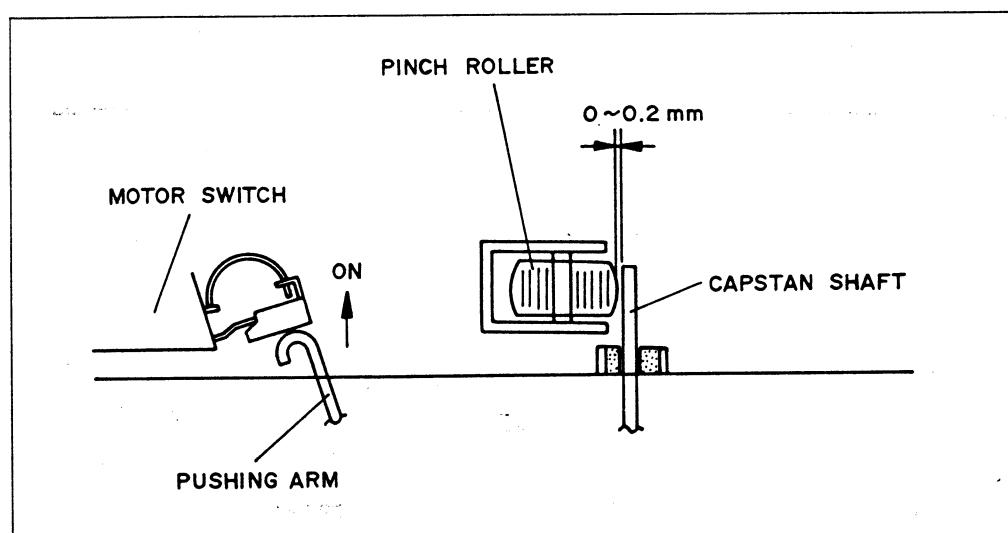


Figure 26

PINCH ROLLER PRESSURE ADJUSTMENT (Refer to Figure 27)

1. With power supply turned on, push the point **(A)** with a tension gauge to make the pinch roller apart from the capstan shaft. Then, gradually release the tension gauge and read its value when the pressure roller starts to rotate.
2. It is normal that the tension gauge reads 320 ~ 380g. If the above value is not satisfied, change the setting position of Pinch Roller Spring.

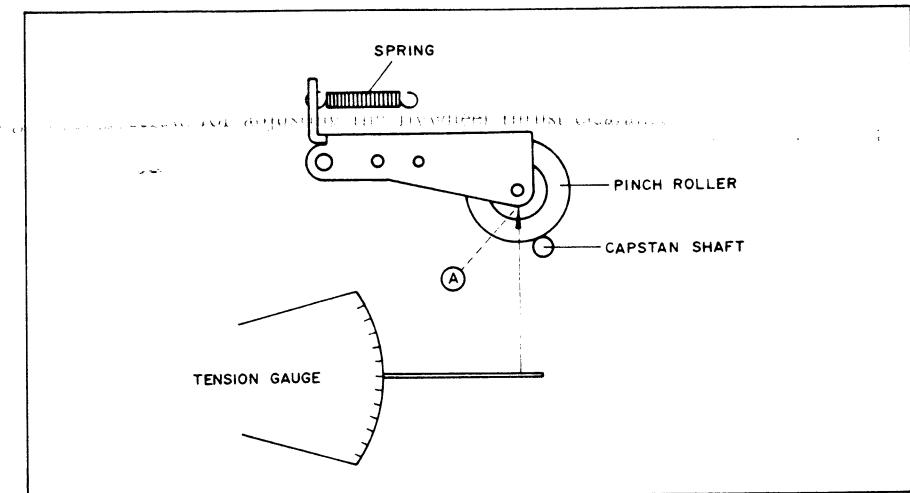


Figure 27

TORQUE CHECK (Refer to Figure 28)

1. Set the torque measuring reel to the turntable (the take-up side at play or fast forward mode and the supply side at rewind mode).
2. Then, rotate the reel in the same direction as for turntable and read the torque value when the pointer is stabilized.

Mode	Torque Value
Play	35 ~ 55 gr.cm
Fast Forward	More than 70 gr.cm
Rewind	More than 70 gr.cm

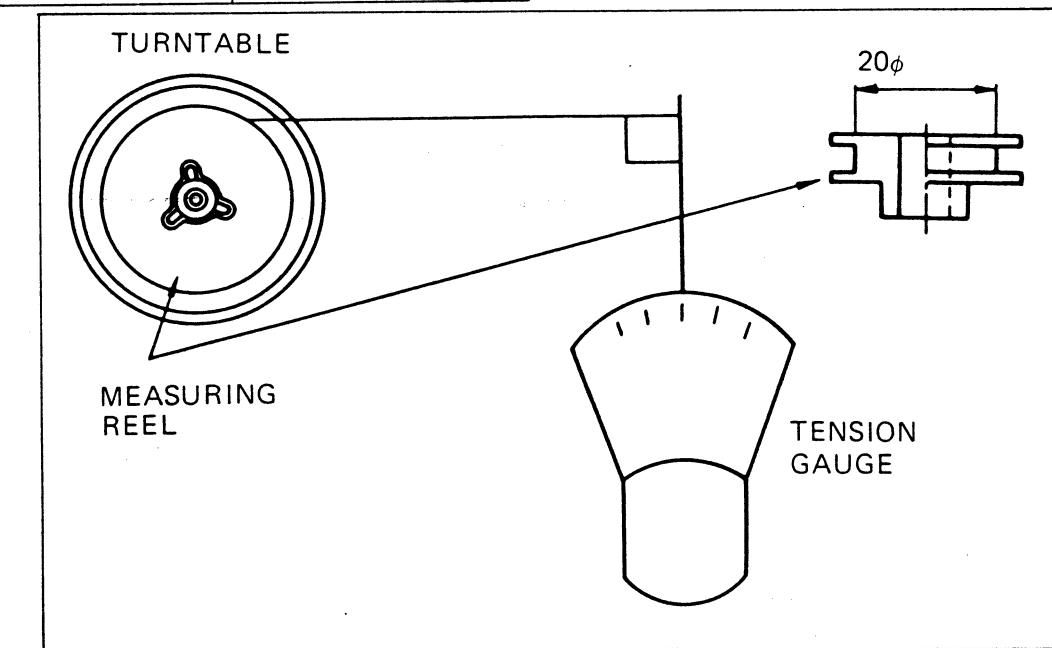
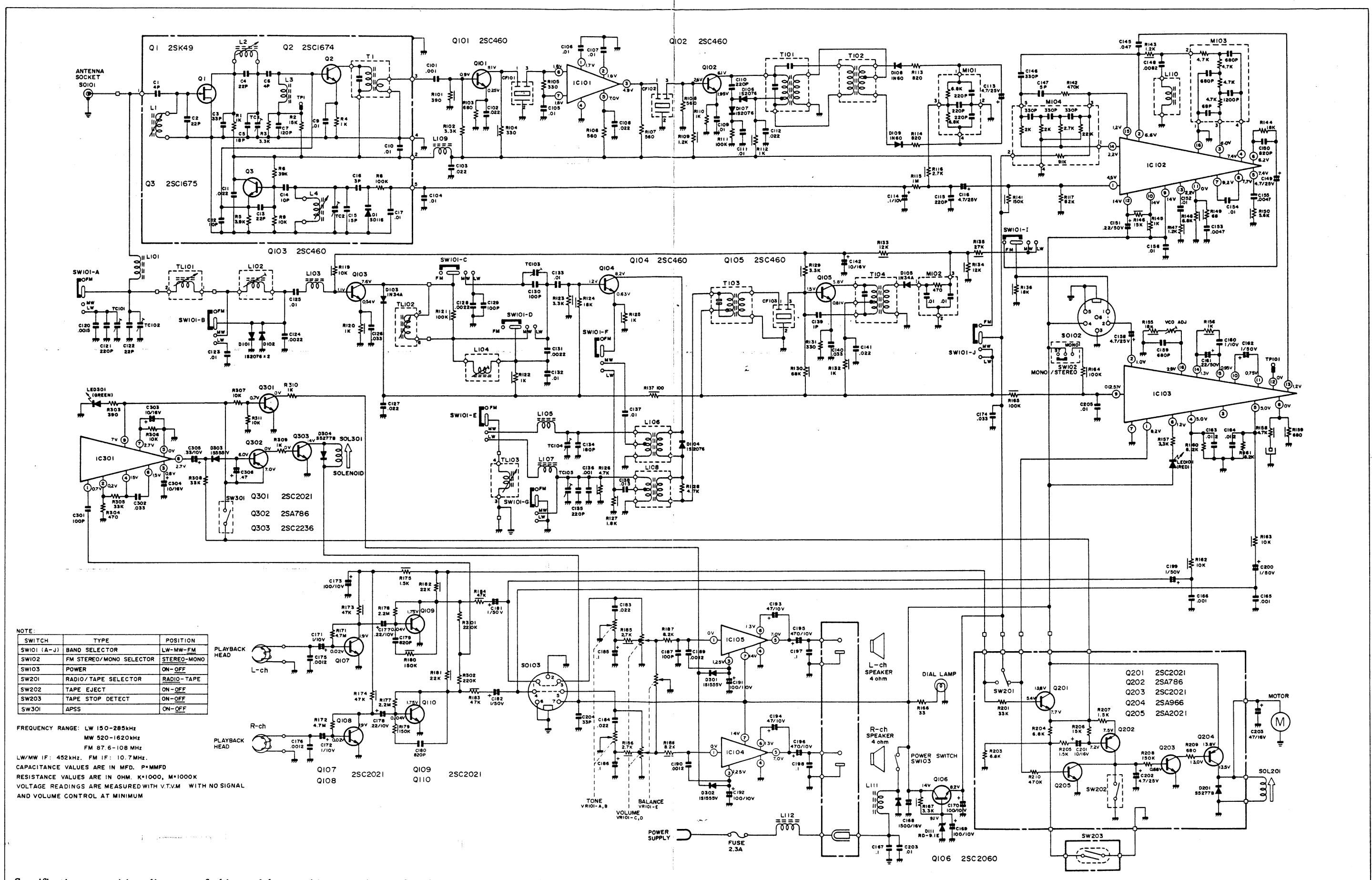


Figure 28



Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.

Figure 29 SCHEMATIC DIAGRAM (RG-5850H)

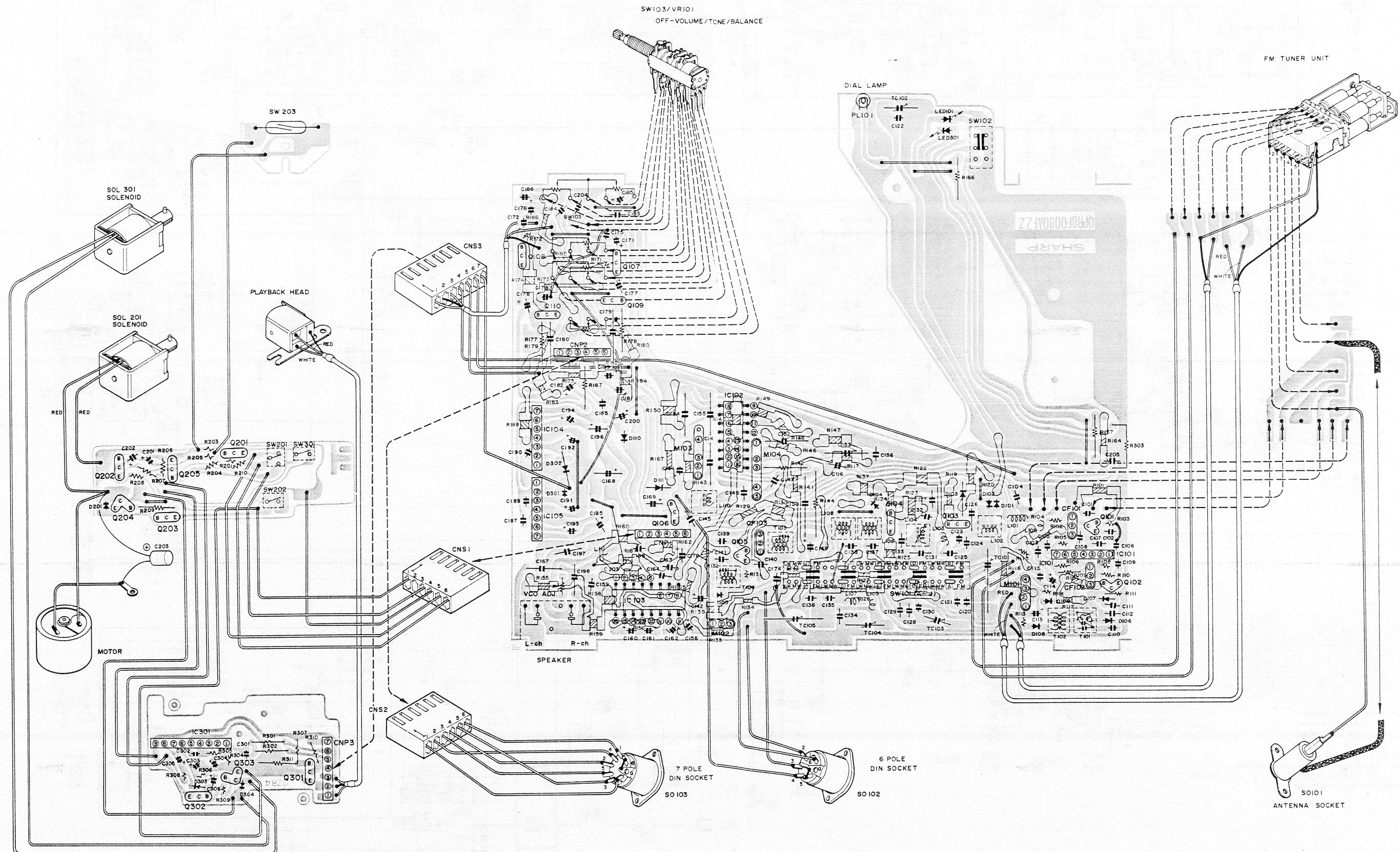


Figure 30 WIRING CONNECTIONS (RG-5850H)

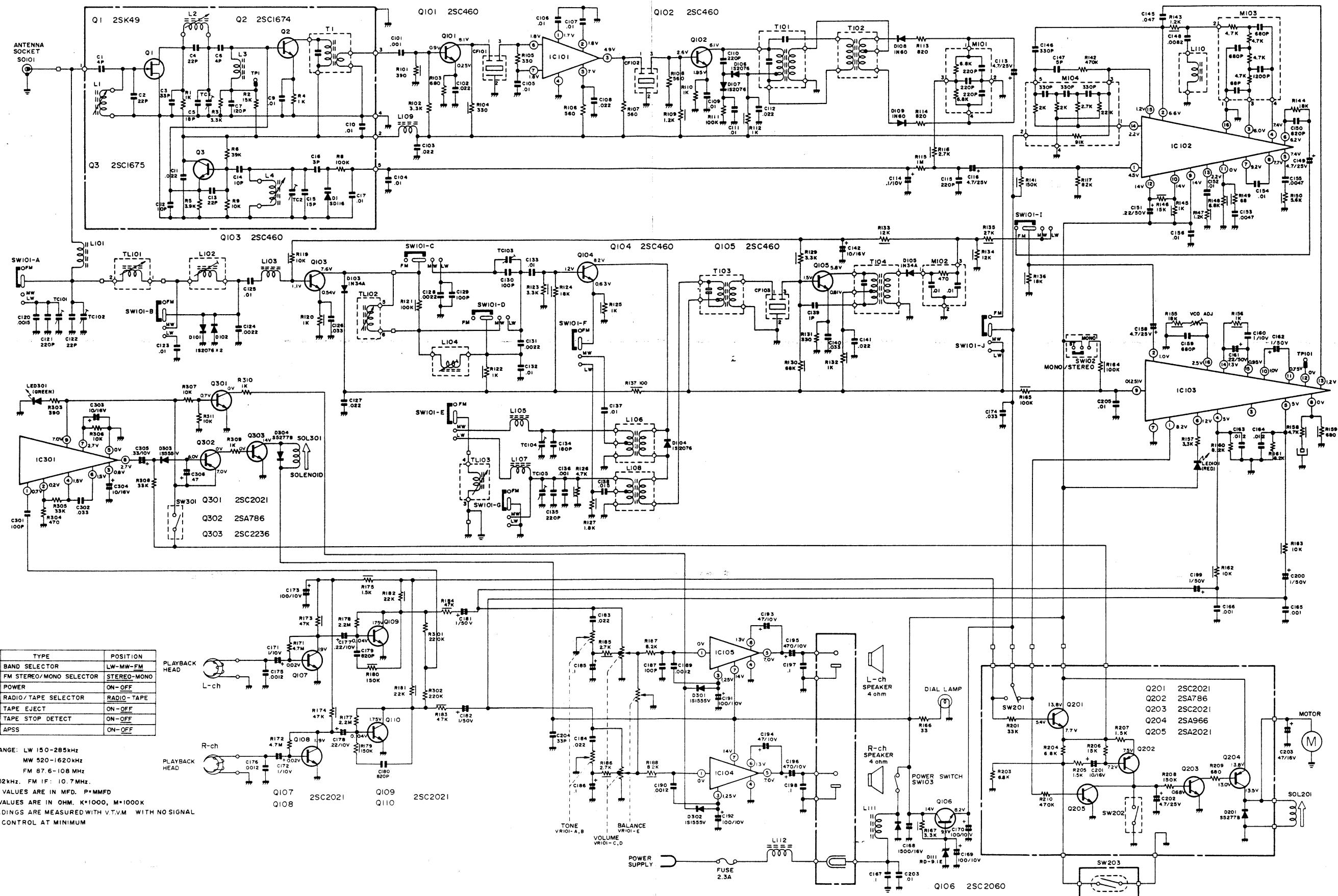
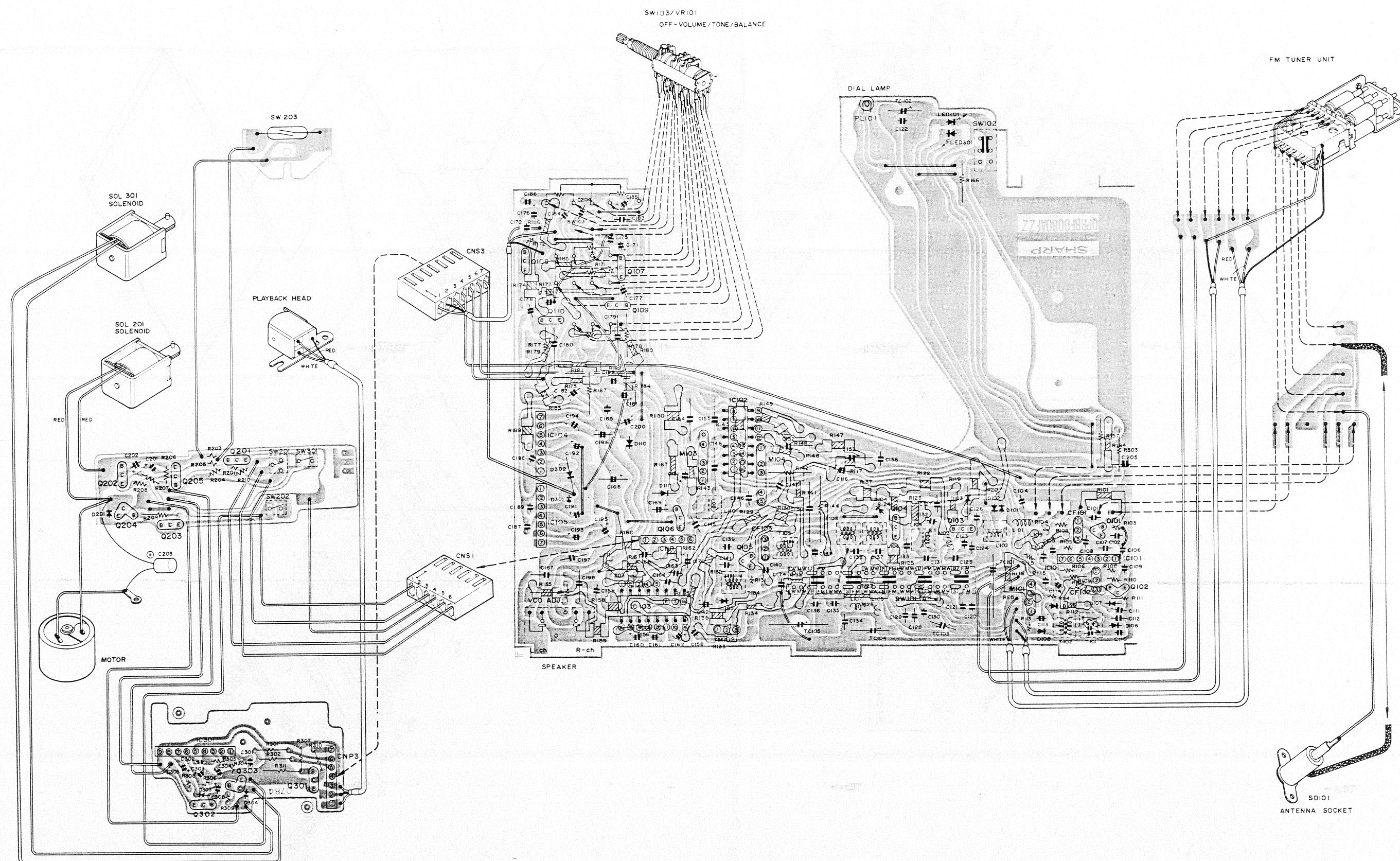
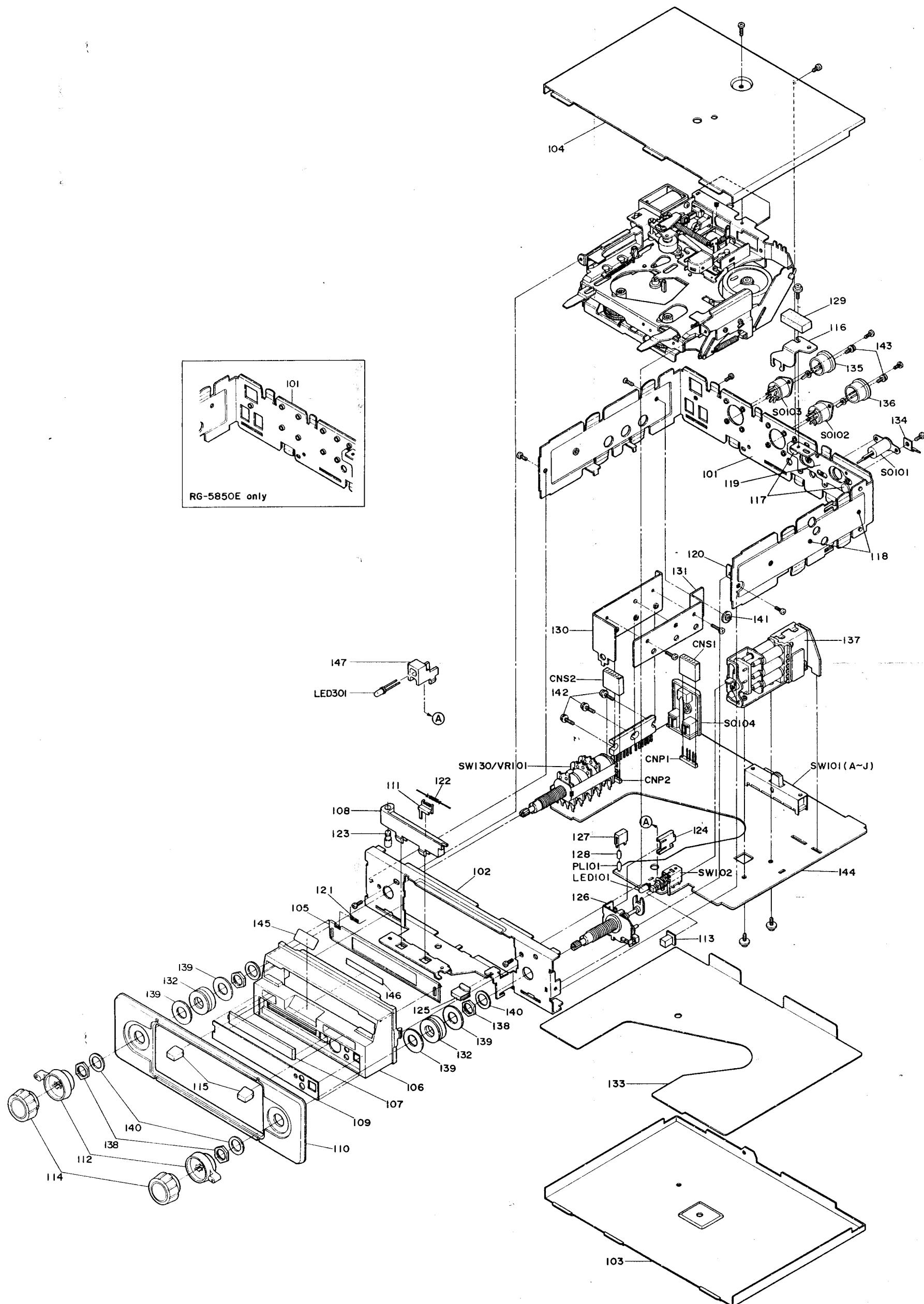
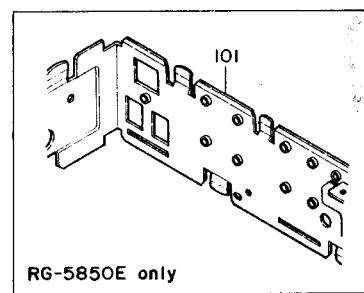


Figure 31 SCHEMATIC DIAGRAM (RG-5850E)





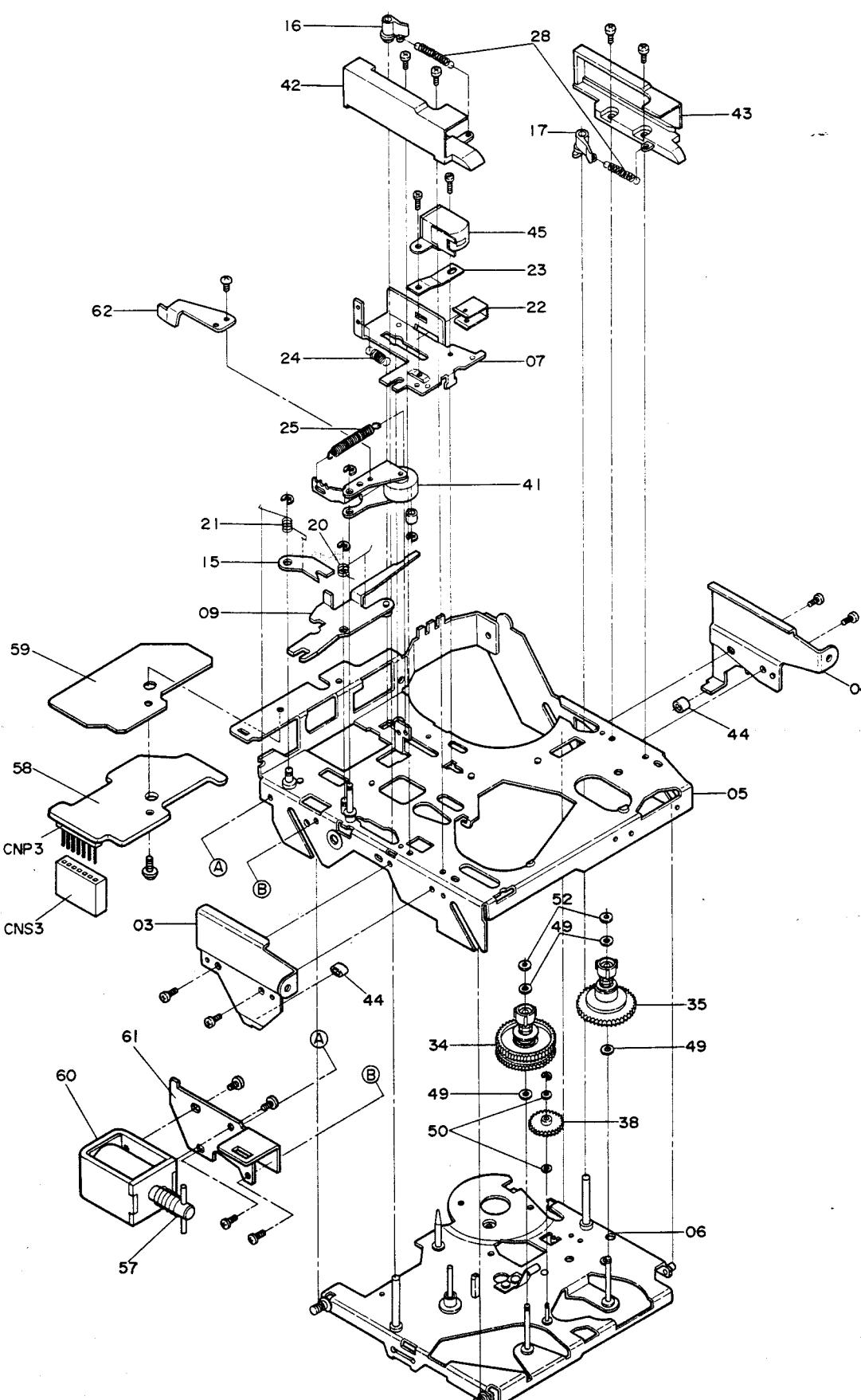
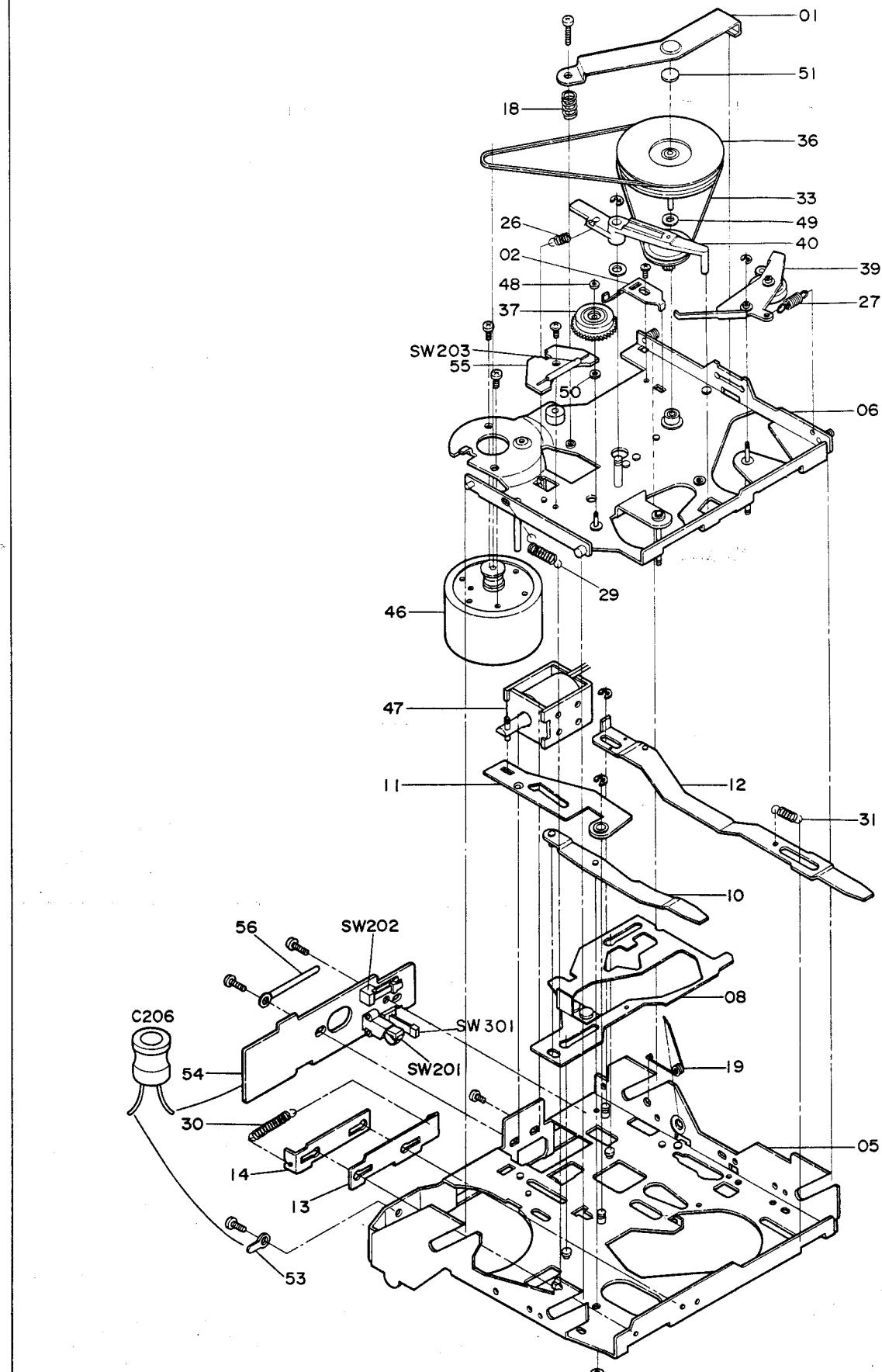


Figure 34 MECHANISM EXPLODED VIEW (UPPER SIDE)



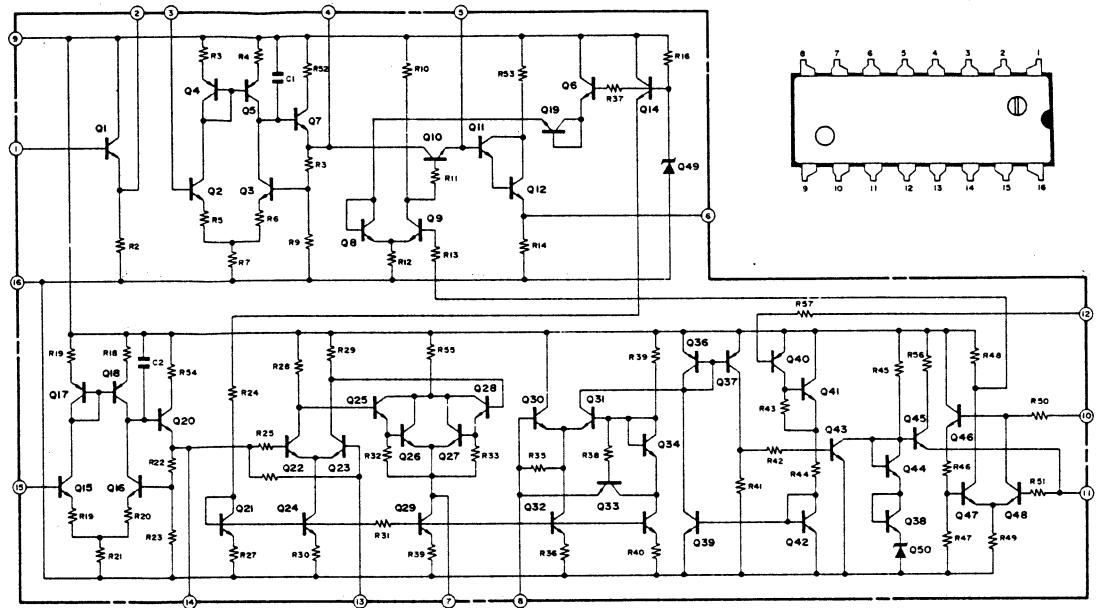


Figure 36 EQUIVALENT CIRCUIT OF IC102

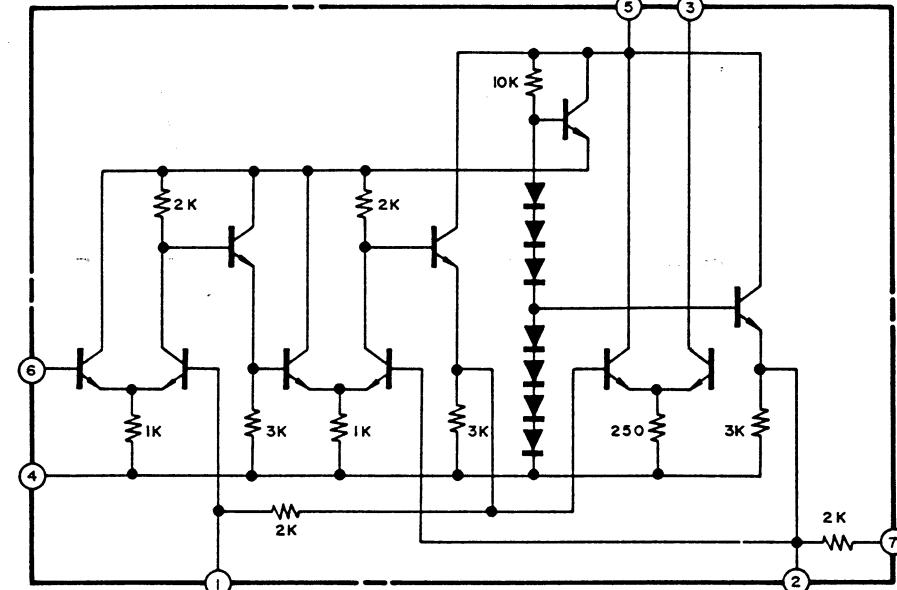


Figure 37 EQUIVALENT CIRCUIT OF IC101

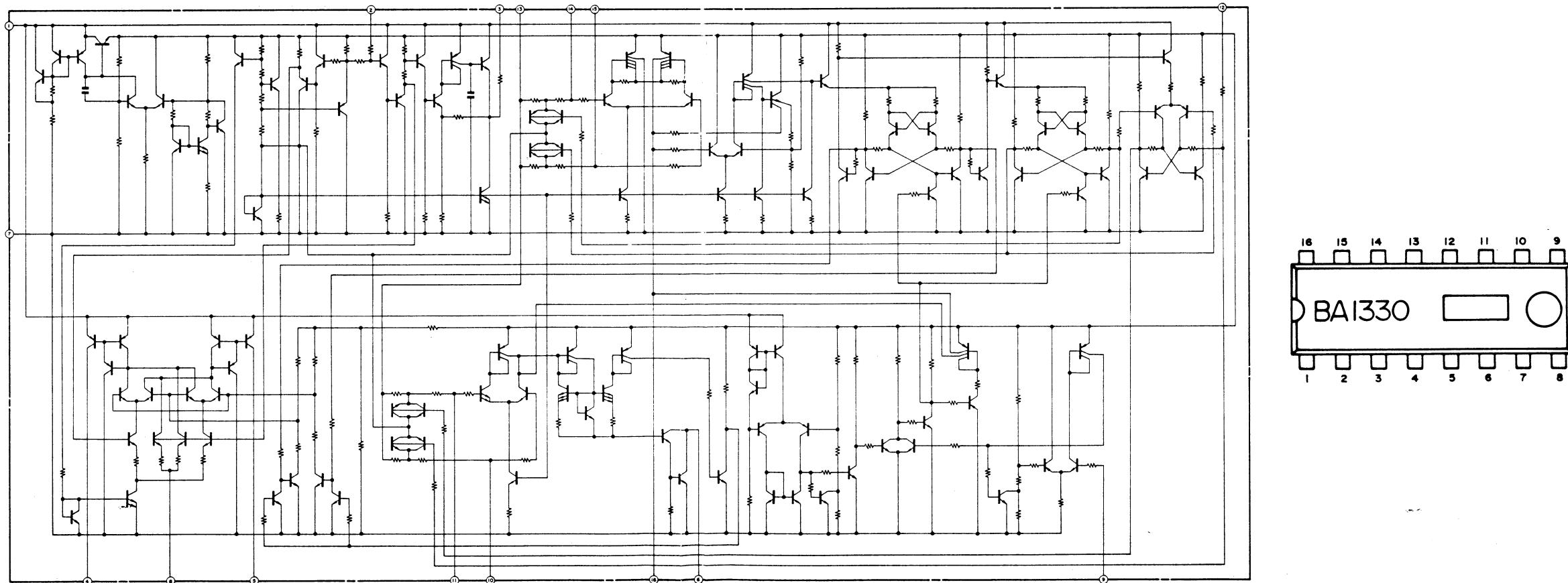


Figure 38 EQUIVALENT CIRCUIT OF IC103

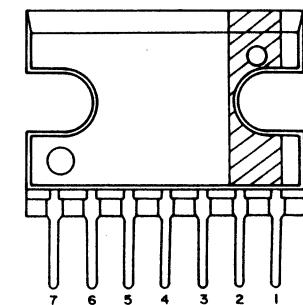
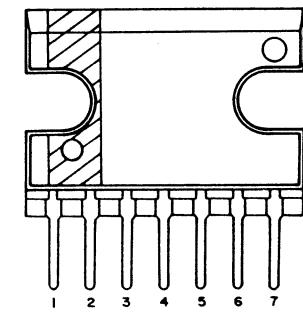
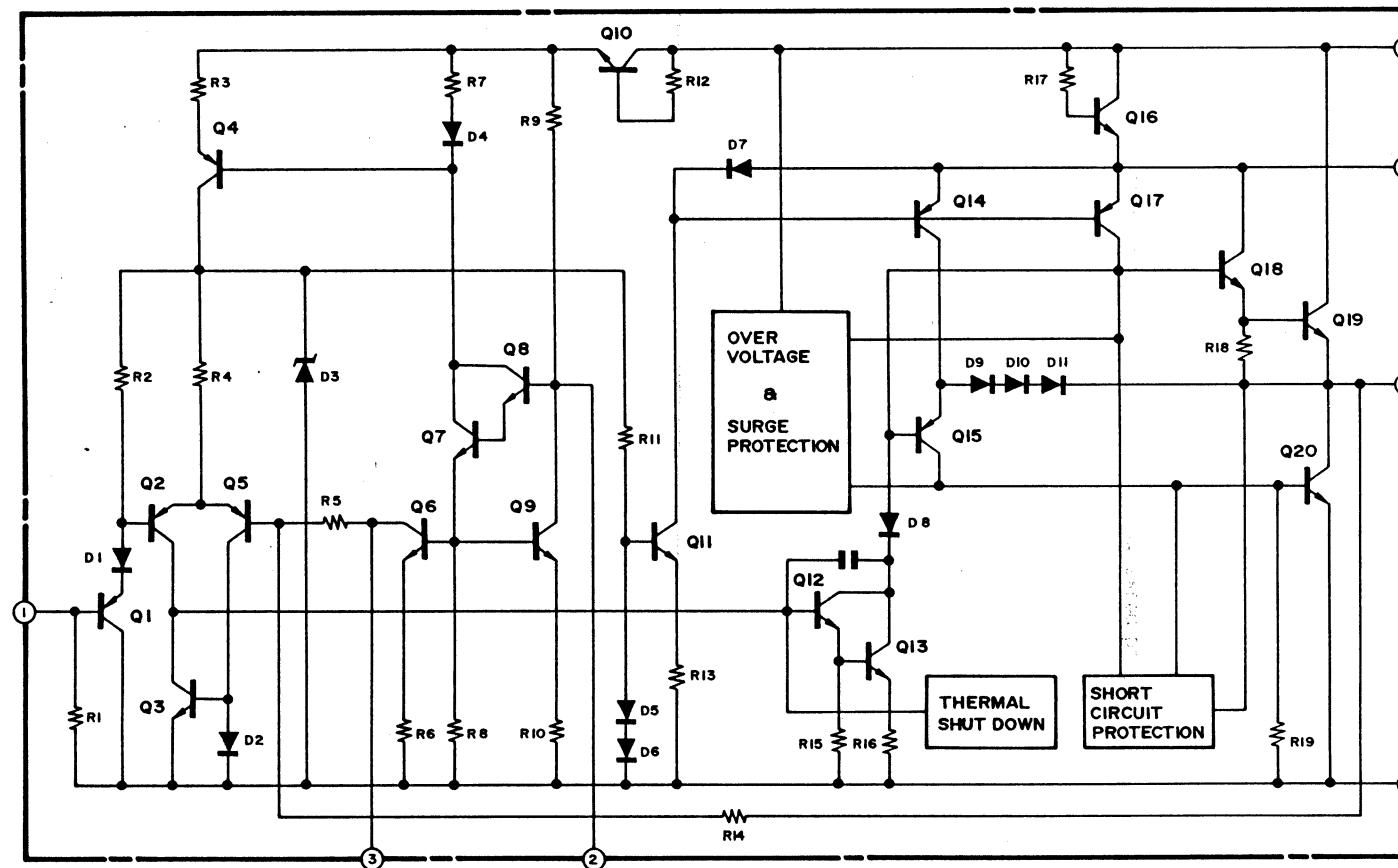


Figure 39 EQUIVALENT CIRCUIT OF IC104 and IC105

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE		
INTEGRATED CIRCUITS									
IC101	RH-IX0932AFZZ	FM IF Amp. (BA402)	AM	D303	VHD1S2076//1	Protector (1S2076)	AG		
IC102	RH-IX1110AFZZ	ANSS (HA11219)	AM	D304	VHDS5277B//1	Protector (1S2076)	AB		
IC103	RH-IX1109AFZZ	PLL FM Stereo Demodulator (BA1330)	AM	COILS					
IC104	RH-IX1107AFZZ	Audio Power Amp. (μPC1181H)	AN	L101	RCILC0065AFZZ	Choke	AC		
IC105	RH-IX1108AFZZ	Audio Power Amp. (μPC1182H)	AN	L102	RCILA0301AFZZ	LW Antenna	AB		
IC301	VHIIIR3108//1	APSS	**	L103	RCILC0051AFZZ	Noise Filter	AC		
TRANSISTORS									
Q101	VS2SC460-B-1	FM IF Amp. (2SC460B)	AC	L104	RCILA0301AFZZ	LW RF	AB		
Q102	VS2SC460-B-1	FM IF Amp. (2SC460B)	AC	L105	RCILC0065AFZZ	MW Oscillation	AC		
Q103	VS2SC460-B-1	AM RF Amp. (2SC460B)	AC	L106	RCILB0322AFZZ	MW Oscillation	AD		
Q104	VS2SC460-B-1	AM Converter (2SC460B)	AC	L107	RCILC0060AFZZ	LW Oscillation	AC		
Q105	VS2SC460-C-1	AM IF Amp. (2SC460C)	AC	L108	RCILB0307AFZZ	LW Oscillation	AD		
Q106	VS2SC2060R/-1	Voltage Regulator (2SC2060R)	AD	L109	RCILC0051AFZZ	Power Filter	AC		
Q107	VS2SC2021LNS1	Tape Pre Amp. (2SC2021LNS)	AC	L110	RCILZ0061AFZZ	19kHz Trap	AE		
Q108	VS2SC2021LNS1	Tape Pre Amp. (2SC2021LNS)	AC	L111	RCILF0067AFZZ	Power Filter	AD		
Q109	VS2SC2021E21F	Tape Pre Amp. (2SC2021E2)	AB	TRANSFORMERS					
Q110	VS2SC2021E21F	Tape Pre Amp. (2SC2021E2)	AB	T101	RCILI0185AFZZ	FM Discriminator	AE		
Q201	VS2SC2021E11F	Solenoid Control (2SC2021E1)	AB	T102	RCILI0182AFZZ	FM Discriminator	AE		
Q202	VS2SA786-R/-1	Solenoid Control (2SC786R)	AC	T103	RCILI0238AFZZ	AM IF	AD		
Q203	VS2SC2021E11F	Solenoid Control (2SC2021E1)	AB	T104	RCILI0170AFZZ	AM IF	AD		
Q204	VS2SA966-O/-1	Solenoid Drive (2SA966OO)	**	FILTERS					
Q205	VS2SC2021E11F	Solenoid Control (2SC2021E1)	AB	CF101	RFILF0009AFZZ	Ceramic, 10.7MHz, FM IF	AE		
Q301	VS2SC2021E11F	Muting (2SC2021E1)	AB	CF102	RFILF0009AFZZ	Ceramic, 10.7MHz, FM IF	AE		
Q302	VS2SA786-R/-1	APSS Solenoid Control (2SA786R)	AC	CF103	RFILA0059AFZZ	Ceramic, 452kHz, AM IF	AD		
Q303	VS2SC2236O/-1	APSS Solenoid Drive (2SC236)	**	PACKAGED CIRCUIT					
DIODES									
D101	VHD1S2076//1	Protector (1S2076)	AG	M101	RMPTA0105AFZZ	6.8K ohm x 2 + 220PF x 3	AC		
D102	VHD1S2076//1	Protector (1S2076)	AG	M102	RMPTA0108AFZZ	470 ohm + .01MFD x 2	AC		
D103	VHD1N34A///1	AM Overload (1N34A)	AC	M103	RMPTA0107AFZZ	4.7K ohm x 4 + 68PF + 680PF x 2 + 1200PF	AG		
D104	VHD1S2076//1	Stabilizer (1S2076)	AG	M104	RMPTA0106AFZZ	2K ohm x 2 + 2.7K ohm + 22K ohm + 91K ohm + 330PF x 3	AF		
D105	VHD1N34A///1	AM Detector (1N34A)	AC	CONTROLS					
D106	VHD1S2076//1	Noise Limiter (1S2076)	AG	VR101	RVR-B0164AFZZ	Volume/Tone/Balance Control and Power Switch	AU		
D107	VHD1S2076//1	Noise Limiter (1S2076)	AG	VR102					
D108	VHD1N60///-3	FM Detector (1N60P)	AH	TC101	RTO-A1004AFZZ	5K ohm (B), VCO Frequency Adjustment	AC		
D109	VHD1N60///-3	FM Detector (1N60P)	AH	TC102	RTO-A1053AFZZ	Trimmer, LW Antenna	AH		
D110	VHDS5277B//1	Protector (S5277B)	AB	TC103	RTO-A1052AFZZ	Trimmer, MW Antenna	AD		
D111	VHERD9.1ED/-1	Zener (Voltage Regulator) (RD9.1E)	AC	TC104	RTO-A1052AFZZ	Trimmer, MW RF	AD		
D201	VHDS5277B//1	Protector (S5277B)	AB	TC105	RTO-A1004AFZZ	Trimmer, MW Oscillation	AD		
LED101	VHPGL-5PR5/1F	FM Stereo Indicator (GL-5PR5)	AD	TRIMMERS					
LED301	VHPGL-5PG5/1F	APSS Indicator (RG-5PG5)	**	TC101	RTO-A1004AFZZ	Trimmer, LW Oscillation	AH		
D301	VHD1S2076//1	Protector, Reverse Current (1S2076)	AG	TC102	RTO-A1053AFZZ	Trimmer, MW Oscillation	AD		
D302	VHD1S2076//1	Protector, Reverse Current (1S2076)	AG	TC103	RTO-A1052AFZZ	Trimmer, MW RF	AD		
				TC104	RTO-A1052AFZZ	Trimmer, MW Oscillation	AD		
				TC105	RTO-A1004AFZZ	Trimmer, LW Oscillation	AH		

** Price will be quoted upon receipt of order.

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
CAPACITORS							
C101	VCQYKU1HM102M	.001MFD, 50V, ±20%, Mylar	AB	C154	VCTYAT1EX103N	.01MFD, 25V, ±30%, Ceramic	AA
C102	VCTYPU1EX223K	.022MFD, 25V, ±10%, Ceramic	AB	C155	VCTYAT1EX472N	.0047MFD, 25V, ±30%, Ceramic	AA
C103	VCTYPU1EX223M	.022MFD, 25V, ±20%, Ceramic	AA	C156	VCTYPU1EX103M	.01MFD, 25V, ±20%, Ceramic	AA
C104	VCTYPU1EX103M	.01MFD, 25V, ±20%, Ceramic	AA	C158	VCEAAU1EW475A	4.7MFD, 25V, +75 -10%, Electrolytic	AB
C105	VCTYPU1EX103M	.01MFD, 25V, ±20%, Ceramic	AA	C159	VCQSMU1HS681J	680PF, 50V, ±5%, Styrol	AB
C106	VCTYPU1EX103M	.01MFD, 25V, ±20%, Ceramic	AA	C160	VCAAKU1AA105M	1MFD, 10V, ±20%, Electrolytic	AD
C107	VCTYPU1EX103M	.01MFD, 25V, ±20%, Ceramic	AA	C161	VCAAAU1AB224M	.22MFD, 10V, ±20%, Electrolytic	AC
C108	VCTYPU1EX223K	.022MFD, 25V, ±10%, Ceramic	AB	C162	VCEAAU1HW105A	1MFD, 50V, +75 -10%, Electrolytic	AB
C109	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	AB	C163	VCTYPU1EX123K	.012MFD, 25V, ±10%, Ceramic	AB
C110	VCRYPYU1HB221J	220PF, 50V, ±5%, Ceramic	AB	C164	VCTYPU1EX123K	.012MFD, 25V, ±10%, Ceramic	AB
C111	VCTYPU1EX103M	.01MFD, 25V, ±20%, Ceramic	AA	C165	VCTYPU1EX102K	.001MFD, 25V, ±10%, Ceramic	AA
C112	VCTYPU1EX223K	.022MFD, 25V, ±10%, Ceramic	AB	C166	VCTYPU1EX102K	.001MFD, 25V, ±10%, Ceramic	AA
C113	VCEAAU1EW475A	4.7MFD, 25V, +75 -10%, Electrolytic	AB	C167	VCKZPU1HF104Z	.1MFD, 50V, +80 -20%, Ceramic	AC
C114	VCAAAU1AB104M	.1MFD, 10V, ±20%, Electrolytic	AC	C168	RC-EZ1075AFZZ	1500MFD, 16V, +50 -10%, Electrolytic	AE
C115	VCRYPYU1HB221J	220PF, 50V, ±5%, Ceramic	AB	C169	RC-EZ107AF1A	100MFD, 10V, +30 -10%, Electrolytic	AB
C116	VCEAAU1EW475A	4.5MFD, 25V, +75 -10%, Electrolytic	AB	C170	RC-EZ107AF1A	100MFD, 10V, +30 -10%, Electrolytic	AB
C120	VCQYKU1HM152J	.0015MFD, 50V, ±5%, Mylar	AC	C171	VCAAKU1AA105M	1MFD, 10V, ±20%, Electrolytic	AD
C121	VCRYPYU1HB221J	220PF, 50V, ±5%, Ceramic	AB	C172	VCAAAU1AB105M	1MFD, 10V, ±20%, Electrolytic	AD
C122	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic	AA	C173	RC-EZ107AF1A	100MFD, 10V, +30 -10%, Electrolytic	AB
C123	VCTYPU1EX103M	.01MFD, 25V, ±20%, Ceramic	AA	C174	VCTYPU1EX333M	.033MFD, 25V, ±20%, Ceramic	AB
C124	VCQYKU1HM222M	.0022MFD, 50V, ±20%, Mylar	AB	C175	VCTYPU1EX122K	.0012MFD, 25V, ±10%, Ceramic	AA
C125	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	AB	C176	VCTYPU1EX122K	.0012MFD, 25V, ±10%, Ceramic	AA
C126	VCTYPU1EX333M	.033MFD, 25V, ±20%, Ceramic	AB	C177	VCAAKU1AA224M	.22MFD, 10V, ±20%, Electrolytic	AC
C127	VCTYPU1EX223M	.022MFD, 25V, ±20%, Ceramic	AA	C178	VCAAKU1AA224M	.22MFD, 10V, ±20%, Electrolytic	AC
C128	VCQYKU1HM222J	.0022MFD, 50V, ±5%, Mylar	AB	C179	VCKYAT1HB821K	820PF, 50V, ±10%, Ceramic	AA
C129	VCRYPYU1HB101J	100PF, 50V, ±5%, Ceramic	AA	C180	VCKYAT1HB821K	820PF, 50V, ±10%, Ceramic	AA
C130	VCRYPYU1HB101J	100PF, 50V, ±5%, Ceramic	AA	C181	VCAAKU1AA105M	1MFD, 10V, ±20%, Electrolytic	AD
C131	VCTYPU1EX222M	.0022MFD, 25V, ±20%, Ceramic	AA	C182	VCAAKU1AA105M	1MFD, 10V, ±20%, Electrolytic	AD
C132	VCTYPU1EX103M	.01MFD, 25V, ±20%, Ceramic	AA	C183	VCTYPU1EX223K	.022MFD, 25V, ±10%, Ceramic	AB
C133	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	AB	C184	VCTYPU1EX223K	.022MFD, 25V, ±10%, Ceramic	AB
C134	VCCTPU1HH181J	180PF (TH), 50V, ±5%, Ceramic	AB	C185	VCAAAU1AB104M	.1MFD, 10V, ±20%, Electrolytic	AC
C135	VCRYPYU1HB221J	220PF, 50V, ±5%, Ceramic	AB	C186	VCAAAU1AB104M	.1MFD, 10V, ±20%, Electrolytic	AC
C136	VCQYKU1HM102K	.001MFD, 50V, ±10%, Mylar	AB	C187	VCRYPYU1HB101J	100PF, 50V, ±5%, Ceramic	AA
C137	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	AB	C188	VCTYPU1EX122K	.0012MFD, 25V, ±10%, Ceramic	AA
C138	VCQYKU1HM153M	.015MFD, 50V, ±20%, Mylar	AB	C189	VCTYPU1EX122K	.0012MFD, 25V, ±10%, Ceramic	AA
C139	VCCSPU1HL1R0C	1PF, 50V, ±25PF, Ceramic	AA	C190	VCTYPU1EX122K	.0012MFD, 25V, ±10%, Ceramic	AA
C140	VCQYKU1HM333M	.033MFD, 50V, ±20%, Mylar	AB	C191	RC-EZ107AF1A	100MFD, 10V, +30 -10%, Electrolytic	AB
C141	VCTYPU1EX223K	.022MFD, 25V, ±10%, Ceramic	AB	C192	RC-EZ107AF1A	100MFD, 10V, +30 -10%, Electrolytic	AB
C142	VCEAAU1CW106Y	10MFD, 16V, +50 -10%, Electrolytic	AB	C193	VCEAAU1AW476Y	47MFD, 10V, +50 -10%, Electrolytic	AB
C145	VCTYPU1EX473M	.047MFD, 25V, ±20%, Ceramic	AB	C194	VCEAAU1AW476Y	47MFD, 10V, +50 -10%, Electrolytic	AB
C146	VCRYPYU1HB331J	330PF, 50V, ±5%, Ceramic	AB	C195	RC-EZ477AF1C	470MFD, 16V, +30 -10%, Electrolytic	AC
C147	VCCSPU1HL5R0C	5PF, 50V, ±25PF, Ceramic	AA	C196	RC-EZ477AF1C	470MFD, 16V, +30 -10%, Electrolytic	AC
C148	VCTYAT1EX822N	.0082MFD, 25V, ±30%, Ceramic	AA				
C149	VCEAAU1EW475A	4.7MFD, 25V, +75 -10%, Electrolytic	AB				
C150	VCKYAT1HB821K	820PF, 50V, ±10%, Ceramic	AA				
C151	VCEALU1HC224M	.22MFD, 50V, ±20%, Electrolytic	AB				
C152	VCTYAT1EX103N	.01MFD, 25V, ±30%, Ceramic	AA				
C153	VCTYAT1EX472N	.0047MFD, 25V, ±30%, Ceramic	AA				

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
MECHANICAL PARTS											
C197	VCQYKU1HM104M	.1MFD, 50V, ±20%, Mylar	AC	R303	VRD-ST2EE391J	390 ohm	AA	C198	VCQYKU1HM104M	.1MFD, 50V, ±20%, Mylar	AC
C199	VCEAAU1HW105A	1MFD, 50V, +75 -10%, Electrolytic	AB	R304	VRD-SU2BY471J	470 ohm, 1/8W, ±5%, Carbon	AA	C200	VCEAAU1HW105A	1MFD, 50V, +75 -10%, Electrolytic	AB
C201	VCEAAU1CW106Y	10MFD, 16V, +50 -10%, Electrolytic	AB	R305	VRD-SU2BY333J	33K ohm, 1/8W, ±5%, Carbon	AA	C202	VCEAAU1EW475A	4.7MFD, 25V, +75 -10%, Electrolytic	AB
C203	RC-EZ476AF1C	47MFD, 16V, +30 -10%, Electrolytic	AB	C204	VCCSPU1HL330J	33PF, 50V, ±5%, Ceramic	AA	C205	VCTYPU1EX103M	.01MFD, 25V, ±20%, Ceramic	AA
C301	VCCSPU1HL101J	100PF, 50V, ±5%, Ceramic	**	C302	VCTYPU1EX333K	.033MFD, 25V, ±10%, Ceramic	**	C303	VCEALU1CW106M	10MFD, 16V, ±20%, Electrolytic	AB
C304	VCEAAU1CW106Y	10MFD, 16V, +50 -10%, Electrolytic	AB	C305	VCAAAU1AB334M	.33MFD, 10V, ±20%, Electrolytic	AC	C306	VCAAKU1AA474M	.47MFD, 10V, ±20%, Electrolytic	AC
RESISTORS											
(Unless otherwise specified resistors are 1/4W, ±5%, Carbon type.)											
R102	VRD-SU2BY332J	3.3K ohm, 1/8W, ±5%, Carbon	AA	R11	MLEVF0820AFZZ	Lever, Fast Forward/Rewind	AA	R103	VRD-SU2BY681J	680 ohm, 1/8W, ±5%, Carbon	AA
R105	VRD-SU2BY331J	330 ohm, 1/8W, ±5%, Carbon	AA	R12	MLEVF0821AFZZ	Lever, Play Lock	AA	R106	VRD-SU2BY561J	560 ohm, 1/8W, ±5%, Carbon	AA
R107	VRD-SU2BY561J	560 ohm, 1/8W, ±5%, Carbon	AA	R13	MLEVF0822AFZZ	Lever, Eject	AA	R108	VRD-SU2BY561J	560 ohm, 1/8W, 5%, Carbon	AA
R110	VRD-SU2BY102J	1K ohm, 1/8W, ±5%, Carbon	AA	R14	MLEVF0823AFZZ	Lever, Fast Forward Return	AB	R111	VRD-SU2BY104J	100K ohm, 1/8W, ±5%, Carbon	AA
R113	VRD-SU2BY821J	820 ohm, 1/8W, ±5%, Carbon	AA	R15	MLEVF0824AFWW	Lever, Rewind Return	AB	R114	VRD-SU2BY821J	820 ohm, 1/8W, ±5%, Carbon	AA
R115	VRD-ST2EE105J	1 Meg ohm	AA	R16	MLEVF0825AFZZ	Lever, Eject Prevent	AA	R131			

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
44	PGUMM0111AF00	Cushion Rubber	AB	135	QPLGD0401AFZZ	Shorting Plug (RG-5850H Only)	AC
45	RHEDF0054AFZZ	Head, Playback	AR	136	QPLGD0402AFZZ	Shorting Plug (RG-5850H Only)	AC
46	RMOTM0080AFZZ	Motor	AV	137	RTUNC0124AFZZ	Tuner Unit	BA
47	RPLU-0076AFZZ	Solenoid	AL	138	LX-NZ0058AFFD	Nut, ϕ 9	AA
48	LX-WZ5012AGZZ	Washer	AA	139	PSPAF0052AFFW	Spacer, Metal	AA
49	LX-WZ5018AGZZ	Washer	AA	140	XWHSD92-05140	Washer, ϕ 9.2	AA
50	LX-WZ5020AGZZ	Washer	AA	141	LX-NZ0008SGFD	Nut, ϕ 3	AA
51	LX-WZ9057AFZZ	Spacer, Flywheel	AA	142	LX-HZ0001SGFD	Screw with Washer	**
52	LX-WZ9058AFZZ	Washer, Lock	AA	143	LX-HZ0051AFFD	Screw with Washer	**
53	QHWS-3206AGFN	Lug	AA	144	QPRBF0080AFZZ	Printed Wiring Board (Printed Resistors)	**
54	QPWBF0785AFZZ	Printed Wiring Board, Mechanism Control	—	145	TLABZ0125AFZZ	Label (RG-5850H Only)	**
55	QPWBF0756AFZZ	Printed Wiring Board, Lead Switch	—	146	PREFL0066AFZZ	Reflection Paper	**
56	LHLDW3056AFZZ	Wire Holder	AA	147	LHLDP1054AF00	LED Holder	**
57	MSPRC0170AFFJ	Spring, APSS Solenoid	**	147	LANGT0071AFFW	Suspension Metal	AB
58	QPWBF0784AFZZ	Printed Wiring Board APSS	**	147	LANGZ0003AFFW	Bracket, Mounting	AB
59	PZETF0136AFZZ	Insulator	**	148	LHLDW1075AFZZ	Nylon Band	AA
60	RPLU-0078AFZZ	APSS Solenoid	**	149	LX-BZ0223AFFD	Screw (For Transport Protection)	**
61	LANGT0723AFFW	Solenoid Angle	**	150	LX-BZ0236AFFE	Bolt with Spring and Flat Washers, ϕ 5 x 14 mm	AA

MISCELLANEOUS

101	GCABA3476AFFW	Cabinet, Rear (RG-5850H)	AH	XNESD50-45000	Nut, ϕ 5	AA	
	GCAB-3055AFFW	Cabinet, Rear (RG-5850E)	**	XWHSD50-05000	Washer, ϕ 5	AA	
102	GCABB3476AFFW	Cabinet, Front	AE	CNP1	QCNCM0503SGZZ	Connector, 5 Pin	AD
103	GCABC3476AFFW	Cabinet, Bottom	AE	CNP2	QCNCM217FAFZZ	Connector, 6 Pin (RG-5850H Only)	AC
104	GCABD3476AFFW	Cabinet, Top	AE	CNP3	QCNCM218GAFZZ	Connecotr, 7 Pin	**
105	GFTAC1086AFSA	Cassette Door	**	CNS1	QCNW-0503SGZZ	Wiring Wires with Connector (5 Pin)	AD
106	GWAKP1073AFSA	Nose Piece	AF	CNS2	Not Available	Wiring Wires with Connector (6 Pin) (Part of SO103)	N.A.
107	HDALP0391AFSA	Dial Scale	AD	CNS3	QCNW-0378AFZZ	Wiring Wire with Connector (7 Pin)	**
108	HDAP-0174AF00	Dial Back Plate	AC	QCNW-0321AFZZ	Speaker Cord, 5 m (RG-5850H)	AP	
109	HINDP0131AFSA	Indication Plate	**	QCNW-0342AFZZ	Speaker Cord, 3.5 m (RG-5850E)	AN	
110	HPNLC1242AFSA	Panel	AG	QCNW-0322AFZZ	Earth Cord	AC	
111	HSSND0242AFSA	Dial Pointer	AB	QFS-A232BAFNH	Fuse	AC	
112	JKNBK0167AFSA	Knob, Tone Control and Band Selector	AD	QFSHJ1058AFZZ	Fuse Holder with Coil	AM	
113	JKNBM0262AFSA	Knob, FM Stereo/Mono Selector	AB	SW101	QSW-S0180AFZZ	Switch, Band Selector	AK
114	JKNBN0363AFSA	Knob, Power Switch/Volume/Balance and Tuning Control	AD	SW102	QSW-P0174AFZZ	Switch, FM Stereo/Mono Selector	AF
115	JKNBP0066AFSA	Knob, Eject and FF/REW	AC	SW201	QSW-F0126AFZZ	Switch, Radio/Tape Selector	AE
116	LANGQ0606AFFW	Arm, Band Selector Switch	AB	SW202	QSW-F0127AFZZ	Switch, Tape Eject	AD
117	LB0SH0058AFFW	Boss, Band Selector Lever (A)	AB	SW203	QSW-L0054AFZZ	Switch, Tape Stop Detect	AE
118	LB0SH0059AFFW	Boss, Band Selector Lever (B)	AB	SW301	QSW-F0128AFZZ	Switch, APSS	**
119	MLEVF0831AFFW	Band Selector Lever (A)	AC	PL101	R LMPM0069AFZZ	Lamp, Dial	AD
120	MLEVF0832AFFW	Band Selector Lever (B)	AC	SO101	QS0CZ0015AFZZ	Antenna Socket	AD
121	MSPRD0180AFFJ	Spring, Cassette Door	AA	SO102	QCNW-0324AFZZ	DIN Socket (6 Pole)(RG-5850H)	AG
122	MSPRT0321AFFJ	Spring, Dial Cord	AA	SO103	QCNW-0323AFZZ	DIN Socket (7 Pole) with Connector (RG-5850H only)	AH
123	NPLYC0103AFFW	Dial Cord Guide	AB	SO104	QSOCD0272AFZZ	Speaker Socket	AG
124	NPLYD0050AF00	Dial Cord Guide	AB	SPAKA0520AFZZ	Packing Add.	**	
125	NPLYD0051AF00	Dial Cord Guide	AB	SPAKC1182AFZZ	Packing Case (RG-5850H)	**	
126	NSFTZ0065AFZZ	Shaft, Tuning Control/Band Selector	AK	TINSZ0133AFZZ	Operation Manual (RG-5850H)	**	
127	PCOVU3111AFFW	Lamp Cover	AB	SPAKX0189AFZZ	Packing Add.	**	
128	PCOVZ8055AFZZ	Lamp Cover, Green	AA	SSAKH0097AFZZ	Polyethylene Bag, Set	**	
129	PCUSS0096AFZZ	Cushion	AA	TTAG-0066AFZZ	Tag, ANSS	**	
130	PRDAR0167AFFW	Heat Sink	AA	TINSE0577AFZZ	Operation Manual (RG-5850E)	**	
131	PRDAR0175AFFW	Heat Sink	AD	SPAKC1183AFZZ	Packing Case (RG-5850E)	**	
132	PSPAZ0074AFZZ	Spacer, Plastic	AD				
133	PZETF0133AFZZ	Insulation Plate	AC				
134	QLUGL0150AFZZ	Ground Terminal	AB				